

**SELF-HARM IN RELATION TO ATTACHMENT THEORY  
AND THE CRY OF PAIN MODEL: ATTACHMENT  
INSECURITIES AND FEELINGS OF ENTRAPMENT AS  
VULNERABILITY FACTORS**

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## Abstract

Self-harm thoughts and behaviour have been found to be associated with a wide variety of distal and proximal factors; however, few studies have examined how these factors work together to increase the risk of self-harm. A key distal factor is a history of child and family adversity, which attachment theory views as a precursor of attachment insecurities that may increase the risk of later self-harm. A key proximal factor is the desire to escape from overwhelming distress, and Williams (2001) cry of pain model describes a process that could help better understand the reasons behind seeking escape via self-harm. This research investigated whether insecurely attached individuals tend to feel trapped and whether entrapment leads to self-harm thoughts (suicide ideation [Chapter 2] and thoughts about non-suicidal self-injury [Chapter 3]). This research also investigated whether feelings of entrapment among insecurely attached individuals varied as a function of problem-solving (as assessed with the Means-Ends Problem-Solving [MEPS] procedure [Chapter 4] and a diary study [Chapter 5]). The effect of stressful events on subsequent feelings of defeat and entrapment, and the role of attachment, was also examined using an experimental design (Chapter 6).

Self-harm thoughts were common among insecurely attached individuals and among those who felt trapped. Entrapment was reported by insecurely attached individuals, but this feeling did not explain their self-harm thoughts nor did it vary as a function of problem-solving. In response to a laboratory stressor, attachment insecurities seem to exacerbate negative emotions. The findings suggest that assessment of attachment styles could help to identify individuals at risk of self-harm. Moreover, interventions aimed at reducing feelings of entrapment could decrease the risk of self-harm. Still, studies are needed to clarify the direction of the relationships between attachment, entrapment and self-harm, and the psychological mechanisms that might underlie these relationships.

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In memory of Dr. Agustín Palacios López.

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# **1 General Introduction: Self-Harm in Relation to Attachment Theory and the Cry of Pain Model**

## **Abstract**

Self-harm is a major public health problem worldwide that is particularly prevalent among young people. A history of child and family adversity (Wagner, Silverman & Martin, 2003) and a desire to escape intolerable distress (Fliege, Lee, Grimm & Klapp, 2009; Scoliers et al., 2009) appear to be closely related to self-harm. However, few studies have investigated self-harm from an attachment perspective and past research has not examined whether this perspective could be integrated with self-harm models that emphasise the desire to escape, one of these models being the cry of pain model. The review of the literature presented in this chapter delineates a rationale for integrating the attachment perspective of self-harm and the cry of pain model.

The review suggested that the attachment perspective of self-harm and the cry of pain model have important theoretical similarities and that indirect evidence, derived from theoretical and empirical studies, suggest a relationship between attachment insecurities and feelings of defeat and entrapment. The basis for the integration of the attachment perspective and the cry of pain model is that the attachment view might inform about the origins of the sensitivity to defeat and entrapment; whereas the cry of pain model might inform in more detail about how sensitivities developed in childhood translate into self-harm. The integration of these views

could provide a useful framework to investigate how distal and proximal factors work together to increase the risk of self-harm.

### **1.1 Self-Harm: Definition and Correlates**

Suicide accounts for almost a million deaths per year, has a profound impact on family and friends and the economic costs associated with it are estimated in the billions of US dollars (World Health Organization, 2002). Research suggests that many more people deliberately harm themselves without ending their lives (Nock et al., 2008), this behaviour often associated with significant psychological distress and physical harm that may require hospitalisation. This self-harm behaviour has been found to be a strong predictor of suicide (Cooper et al., 2005) and to be particularly common among youth—including university students (Whitlock & Knox, 2007). There is an urgent need to further understand the psychological processes that lead to self-harm in order to prevent this behaviour and to shed light into the causes of suicide.

There is little consensus regarding the term that should be used to describe self-harm, which makes it difficult to compare prevalence rates across studies and to interpret results. According to Fliege et al. (2009) publications from the United States often distinguish between non-suicidal self-injury (NSSI) and suicidal behaviour, where the former is believed to reflect lack of suicide intent and the latter presence of intent to die. In contrast, publications from the United Kingdom often use the term self-harm to encompass self-injurious behaviours irrespective of suicide intent.

Use of a consistent term across studies seems to be one of the major challenges in the field.

Use of the term self-harm as in the UK tradition might be more descriptive since it avoids ascribing intent to die rather than implying lack of it (Skegg, 2005). Indeed, the distinction between NSSI and suicidal behaviour might rely on the assumption that suicide intent is a dichotomous variable, either present or absent (Prinstein, 2008). This assumption could be problematic because suicidal intent may be ambivalent, concealed or dissimulated (Fliege et al., 2009), it can be interpreted differently by respondents and assessors (Hawton et al., 2012) and it can also be assessed with a dimensional scale (Holden & Kroner, 2003). As a consequence, many authors use the term self-harm, which refers to intentional self-poisoning or self-injury irrespective of the extent of suicidal intent (Mahadevan, Hawton & Casey, 2009). In the following chapters, self-harm and suicidal behaviour will be used interchangeably. However, the term NSSI will be used when authors cited adopted this term in their studies.

Past research has identified a wide variety of factors associated with self-harm and experts emphasise the need to examine how these factors work together to increase the risk of self-harm. Factors that have been associated with self-harm include biological factors, such as disruptions in the functioning of the neurotransmitter serotonin (Nock et al., 2008). Psychiatric disorders, particularly depression and anxiety (Fawcett, 2001), stressful life events such as interpersonal difficulties (Johnson et al.,

2002) and background factors such as child and family adversity (Ehnavall, Parker, Hadzi-Pavlovic & Malhi, 2007).

Child and family adversity appears to be a consistently reported factor associated with self-harm. Santa Mina and Gallop (1998) reviewed the literature on the relationship between childhood sexual and physical abuse and self-harm. They concluded that there is strong evidence to support a link between these factors. Dube et al. (2001) examined the relationship between adverse childhood experiences and self-harm among a large community sample. Adverse childhood adversities included, among others, childhood abuse (emotional, physical and sexual), witnessing domestic violence and parental separation or divorce. These researchers found that that these experiences were strongly associated with self-harm. Moreover, as the number of such experiences increased, the risk of engaging in self-harm increased as well. More recently, Bruffaerts et al. (2010) conducted a large multinational study to investigate the relationship between childhood adversities (e.g., neglect, parental loss and family violence) and self-harm. Using data from the World Mental Health surveys, where more than 50,000 adults were interviewed, these researchers found that adverse childhood experiences, especially physical and sexual abuse, increased the risk of engaging in self-harm. Additional research suggests that other and perhaps less violent forms of child and family adversity, such as not feeling listened or appreciated by caregivers (Fotti, Katz, Afifi & Cox, 2006), are also associated with self-harm.

Although research on the relationship between child and family adversity and self-harm has some limitations, researchers generally agree that this type of adversity is an important risk factor. The limitations include, first, the reliance on cross-sectional designs to investigate the relationship between family adversities and self-harm—which makes it difficult to determine whether the family factor preceded self-harm. Second, these studies often use retrospective reporting and participants might have difficulty recalling certain events. However, in a review of the literature on the validity of retrospective reports of adverse childhood experiences, Hardt and Rutter (2004) concluded that the available evidence suggests that when a person retrospectively reports abuse or neglect these reports are likely to be correct. Finally, child and family adversity can encompass a broad range of events and experiences that could vary substantially in type, severity, duration, degree of violence and relationship of the victim with the perpetrator (Santa Mina & Gallop, 1998). These characteristics could be differentially associated with self-harm. With these caveats in mind, researchers generally agree that aspects of family and parent-child relationships, family losses, separations and child maltreatment, are all associated with self-harm (Wagner et al., 2003).

Bowlby proposed a theory to understand why and how experiences in the family environment were so important determinants of later psychological and social functioning (Shaver & Mikulincer, 2009). Research and theory building on Bowlby's ideas

have made significant contributions to the understanding of the origins of vulnerability to psychological difficulties. However, relatively few studies have used attachment theory to further understand how child and family adversities might foster vulnerability to self-harm.

## **1.2 Attachment Theory and Self-Harm**

Bowlby (1958) rejected the idea that infants were passive in the formation of an emotional bond with the primary caregiver (usually the mother), an idea that seemed to prevail among the psychoanalysts of the time. Instead, Bowlby proposed that the infant, by clinging, following or crying, was quite active in seeking proximity to a caregiver. Influenced by ethology research, Bowlby postulated that these behaviours facilitated the formation of emotional bonds or attachments to caregivers, and that these bonds had a profound influence on personality organisation (Levy et al., 2006). Building on Bowlby's postulations, attachment perspectives on self-harm suggest that child and family adversity, and resulting attachment insecurities, serve as distal risk factors for later self-harm by hindering a person's ability to hold positive feelings of self-worth, maintain fulfilling interpersonal relationships and develop effective strategies to regulate distress (Mikulincer & Shaver, 2007).

### **1.2.1 Key Components of Attachment Theory**

Shaver and Mikulincer (2009) suggest that attachment theory has four key components. First, the existence of an innate behavioural system to establish emotional bonds or attachments to others—the attachment system. Second, inter-individual differences

on how this attachment system works, depending greatly on the quality of interactions with primary caregivers. Third, the internalization of these interactions into relatively stable mental representations called working models. Finally, the existence of individual differences on these working models, which can be measured with the construct of attachment style. The section below describes in more detail these key components identified by Shaver and Mikulincer.

The first key component is that humans evolved behavioural systems that allow them to survive, and that one of these systems is the attachment system. This system aims to protect a person from threats by ensuring that the individual (particularly during early childhood) maintains proximity to a caring, wiser and stronger other—the attachment figure. This primary attachment strategy might be more visible among infants (e.g., when they cry, call or follow their mother), yet attachment researchers believe that this strategy is also present in adults. Although adults might not exhibit actual proximity-seeking behaviour, they might activate internal representations of others who regularly provide care or support (e.g., a romantic partner).

Another key component of attachment theory is that infants are born with the attachment system ready to establish bonds with attachment figures, but the quality of the interaction with these figures influences how the attachment-system works. The sensitivity and responsiveness of the attachment figure, as well as his or her capacity to alleviate distress will, according to attachment theory,

greatly influence how individuals seek and maintain proximity to others. When an attachment figure is available to an individual's bid for proximity, the individual develops a sense of security, protection and comfort. The availability of the attachment figure stops the primary attachment strategy, and the individual can then engage in other activities such as exploration of the environment. However, when the attachment figure is unavailable, unresponsive or insensitive, the individual does not experience a sense of security and comfort. This failure of the primary attachment strategy implies, according to attachment theorists, that secondary attachment strategies are adopted.

Attachment researchers identify two secondary attachment strategies: hyperactivating strategies and deactivating strategies. Hyperactivating strategies are believed to emerge from interactions with caregivers who are perceived as inconsistent, at times providing care and support and at others not. The purpose of the hyperactivating strategy is to get the caregiver to pay attention and provide the support that is demanded. To do so, the attachment system is chronically activated, leading to an exaggeration of the threats and an intensification of the demands for affection and care. According to attachment theorists, when this strategy is practised repeatedly it can become in what they call an anxious attachment style.

Deactivating strategies (Shaver and Mikulincer, 2009) are believed to develop from interactions with caregivers who are perceived as unavailable, overtly rejecting or who punished



expressions of vulnerability or closeness. Caregivers from whom an individual obtained better outcomes if he or she suppressed bids for closeness. According to attachment theory, the purpose of this deactivating attachment strategy is to suppress the attachment system to avoid further negative experiences. To deactivate the attachment system, individuals tend to deny needs for closeness and to distance themselves from threats and from others. When this strategy is practised repeatedly this strategy becomes an avoidant attachment style.

Another key component of attachment theory is the internalisation of the early interactions with caregivers into mental representations called working models. According to Collins and Allard (2001), these working models are hypothetical mental representations about others and the self that are believed to evolve out of early interactions with caregivers and to be stored in long-term memory. Moreover, Collins and Allard note that working models are believed to serve as a framework for perceiving and interpreting experience and to shape social behaviour. It is as if early interactions with caregivers were deeply internalised, becoming part of the individual's personality.

The final key component of attachment theory is the formation of relatively stable individual differences in how the attachment system works throughout life—also called attachment styles. The quality of the interactions with caregivers and the resulting working models give rise to these individual differences, which can be measured by the construct of attachment style.

Attachment styles are viewed as a person's characteristic way of feeling, thinking and behaving in close relationships and social interactions, and a general pattern of regulating emotions in times of stress (Mikulincer, Shaver & Pereg, 2003; Shaver & Mikulincer, 2006).

Attachment styles were initially investigated by observing infant-caregiver interactions in both natural and laboratory settings. To extend the study of attachment to adolescent and adults, researchers developed a number of procedures to assess attachment styles among these older populations. There are two main traditions in the assessment of adult attachment styles: the interview and the self-report method (Crowell, Fraley & Shaver, 2008). The interview tradition mainly relies on the Adult Attachment Interview (AAI) where participants are asked to respond questions on how they perceive their caregivers during childhood. The interviews are transcribed and scored based on a well establish criteria. Although of great value, the AAI is time consuming and difficult to score (Crowell et al., 2008).

The self-report tradition emerged from the field of personality and social psychology in an attempt to apply Bowlby's ideas to the understanding of romantic relationships. Since the publication of the first three-item scale developed by Hazan and Shaver (1987), a large number of scales emerged adding more items and incorporating Likkert-type scales. In an effort to reduce the number of measures, Brennan, Clark and Shaver (1998) factor analysed all the self-report attachment measures developed up to that time and

constructed a now widely used measure of adult attachment: the 36-item Experiences in Close Relationships inventory (ECR; Brennan et al., 1998), which has been slightly revised and called the Experiences in Close Relationships-Revised inventory (ECR-R; Fraley, Waller & Brennan, 2000). Two major factors underlie both measures and are measured with 18-items each: attachment anxiety and attachment avoidance. Attachment anxiety is concerned with the use of hyperactivating strategies for dealing with distress, with a strong desire for closeness and worries about being abandoned by the partner. Attachment avoidance involves the use of deactivating strategies to deal with distress and is concerned with discomfort with closeness, self-reliance and keeping distance from others.

Using these attachment anxiety and attachment avoidance scales, hundreds of studies have investigated whether scores on these scales are related to psychological problems. In general, results suggest that there is a relationship between attachment insecurities and psychological difficulties, such as depression (Simpson & Rholes, 2004), personality disorders (Levy et al., 2006) and eating disorders (Brown & Wright, 2001). Attachment researchers suggest that attachment insecurity could therefore be viewed as a general vulnerability to psychological problems (Mikulincer & Shaver, 2012). Yet, only one model based on attachment theory appears to have explored the role of attachment insecurities in self-harm.

### **1.2.2 Self-Harm from an Attachment Perspective**

Adam (1994) proposed a model to understand how early family disturbances may contribute to the development of vulnerability to self-harm. Adam based his model on studies that suggested a strong association between family disturbances, specifically inadequate parental care, and self-harm; on evidence indicating that attachment styles are remarkably stable throughout life; and on the observation that core aspects of attachment insecurities, such as interpersonal difficulties, low self-esteem and dependency, are characteristic of individuals with a history of self-harm.

In his attachment model of self-harm, Adam (1994) differentiated between predisposing and precipitating factors. Predisposing factors are viewed as past events or experiences that produce vulnerability to self-harm. In contrast, precipitating factors are viewed as current experiences, such as interpersonal difficulties, that reveal the vulnerability that individuals have acquired throughout their development. Thus, Adam's model seems to resemble a diathesis-stress approach to understanding self-harm. Predisposing factors include family disturbances, particularly inadequate parenting behaviour, that promote the development of attachment insecurities. These insecurities, which foster vulnerability to self-harm, are manifested in low self-worth, difficulties forming and maintaining relationships and impaired capacity in regulating emotions in times of stress.

Precipitating factors are interpersonal experiences of loss, rejection or disappointment. When confronted with these experiences, an insecurely attached individual might be prone to experience intense psychological distress and to have difficulties coping with it. The experience of loss, rejection or disappointment, according to Adam (1994), is transformed into a crisis that resembles the behaviour of children following brief separations from their caregivers. Adam suggested that during this crisis, which he termed attachment crisis, people experience overwhelming distress that might lead to self-harm. This behaviour is viewed as a response to the possibility of real or imagined irretrievable loss of an interpersonal relationship.

### **1.2.3 Attachment Insecurities and Self-Harm: Preliminary Evidence**

Although no longitudinal study seems to have examined whether attachment insecurities in childhood predict later self-harm, a number of correlational, cross-sectional studies provide preliminary evidence to support a link between attachment insecurities and self-harm. West, Spreng, Rose and Adam (1999) found that, relative to adolescent psychiatric patients without self-harm, those with a history of self-harm (suicide ideation or suicide attempt) were more likely to report perceiving their caregivers as unresponsive and unavailable. In a more recent study, Critchfield, Levy, Clarkin and Kernberg (2008) investigated the relationship between attachment styles and self-harm among participants with a diagnosis of borderline personality disorder ( $n = 92$ ). Participants

completed self-report measures of attachment and self-harm. These researchers found that attachment insecurities (i.e., attachment anxiety and attachment avoidance) were related to a history of self-harm, including a history of hurting, cutting and causing physical pain to oneself, as well as a history of NSSI.

Using a quantitative and qualitative approach, Wright, Briggs and Behringer (2005) examined the relationship between attachment insecurities and self-harm among adolescents. Their study was conducted among adolescents that were classified into a high-suicidal risk group ( $n = 10$ ), low-suicidal group ( $n = 15$ ) and a comparison group ( $n = 10$ ). To assess attachment styles, these researchers used a semi-projective measure where participants are shown a number of standardised photographs that depict separation scenes, then they are asked to report their feelings associated with the scenes. Using a coding system, responses are analysed to determine an individual's attachment style. Relative to participants from the low-suicidal risk group and the control group, adolescents with high-suicidal risk were more likely to exhibit an enmeshed and preoccupied attachment style. Furthermore, the qualitative analysis of the stories of this latter group revealed themes of overwhelming anxiety, pessimism and fear of losing control. Wright et al. speculated that these themes could be implicated in the development of self-harm behaviour. Although this study is limited by the small sample size, it further suggests that attachment insecurities are linked with self-harm.

The previous studies suggest that there is a link between attachment insecurities and self-harm, however it is unclear what factors could account for this relationship. A review of the literature indicates that only two studies have examined what could mediate the relationship between attachment insecurities and self-harm. In the first study, Stepp et al. (2008) examined whether distress associated with interpersonal problems mediated the relationship between attachment insecurities and self-harm. Participants ( $n = 406$ ), most of them (84%) patients from a psychiatric clinic, were interviewed to assess attachment styles and self-harm history, and completed a self-report scale that measured distress arising from interpersonal sources. Based on the interview data, which included developmental history, symptoms and personality features, judges rated attachment styles in a number of dimensions that reflected the attachment anxiety and attachment avoidance scales mentioned earlier. Stepp et al. found that attachment insecurities, particularly attachment anxiety, were associated with a history of suicide attempts and with a history of NSSI. Moreover, these researchers found that the effects of attachment insecurities on self-harm could be accounted for, at least in part, by distress arising from interpersonal difficulties. For example, the relationship between attachment anxiety and self-harm was accounted for by distress in the domain of interpersonal sensitivity (e.g., having difficulties ignoring criticism from other people).

In the second study, Gormley and McNiel (2010) examined whether depression could account for the relationship between

attachment insecurities and self-harm among psychiatric inpatients. To assess attachment insecurities and depression, participants completed self-report scales, and to assess self-harm Gormley and McNiel extracted data from participants' chart diagnoses. These researchers found that attachment insecurities, particularly attachment anxiety, were associated with a history of suicide attempts and NSSI. Additionally, Gormley and McNiel found that depression partially mediated the relationship between attachment anxiety and self-harm on the one hand, and attachment anxiety and NSSI on the other.

Although the studies mentioned above suggest that depression and distress arising from interpersonal difficulties mediate the relationship between attachment insecurities and self-harm, there are a number of reasons to further examine what other factors could account for this relationship. First, the studies were conducted among clinical samples and it is unclear whether the results generalise to community samples, where self-harm has been found to be prevalent as well. Second, researchers have suggested that self-harm might arise in the absence of depression, and this seems to be particularly relevant for self-harm among community samples such as university students (Arria et al., 2009). Finally, although interpersonal difficulties are considered as important precipitants of self-harm, a number of studies suggest that an important proximal factor associated with self-harm is acute distress arising from either interpersonal or from intrapersonal difficulties. This latter claim seems to be supported by a recent study where the



most frequently self-reported motive for engaging in self-harm among young people was a desire to get relief from a terrible state of mind (Scoliers et al., 2009). In fact, some researchers have suggested that the desire to escape an intolerable situation is the most common self-harm purpose (Maltsberger & Weinberg, 2006).

Since the attachment perspectives on self-harm suggest that individuals with attachment insecurities are prone to experience acute distress in response to stressful situations, and to have difficulties coping with them, it is possible that these individuals are prone to experience overwhelming distress from which they want to escape.

Several models of self-harm have emphasised the desire to escape as a central motivation. For instance, Baumeister's (1990) escape theory posits that people attempt suicide because they want to escape from the self and that they do so after experiencing a causal chain of events that include: (a) experiencing a major setback in life; (b) attributing this setback to oneself; (c) comparing the self to high standards; (d) experiencing negative affect; (e) avoiding meaningful thought; and (f) exhibiting lack of inhibition, which may increase the risk of attempting suicide.

Current psychoanalytic views of self-harm also seem to emphasise the desire to escape from an intolerable state of mind as a central impetus. Yet, Maltsberger and Weinberg (2006), who proposed a psychoanalytic model of self-harm, disagree with Baumeister's (1990) view of suicide attempts as escape from the self. According to Maltsberger and Weinberg by the time a person

attempts suicide the self, which ordinarily is a stable identity, is already shattered.

The theme of escape as a predominant motivation in self-harm has been broadened by Williams (2001) cry of pain model, which attempts to incorporate biological, psychological and social factors implicated in self-harm (O'Connor, 2003).

### **1.3 The Cry of Pain Model of Self-Harm**

Williams (2001) drew on ethology research to incorporate biological, psychological and social factors associated with self-harm. In particular, Williams focused in an interesting phenomenon that occurs among animals—the arrested flight phenomenon. This phenomenon has been observed when two animals compete with each other for a resource, for example territory, and one of them is defeated. The defeated animal tends to adopt submissive and withdrawn (depressive-like) behaviours that are accentuated if it is unable to escape or fly away (“arrested flight”) from the situation. Researchers believe that the evolutionary purpose of these behaviours is to stop signalling threats to the winner animal, as it could otherwise keep attacking until bringing more injury or even death (Gilbert & Allan, 1998). Animal research further suggests that the defeated animal can recover if it is removed or rescued from the aversive situation.

Building on evolutionary accounts of depression, Williams (2001) noticed similarities between these animal reactions and humans’ responses to experiences of defeat, loss or rejection. Williams reasoned that humans have retained some of these

evolutionary mechanisms and that disappointment, loss or humiliation may trigger similar behaviours. In Williams view, people who feel defeated in some aspect of life and who are unable to find a solution or way out from that situation may be at risk of seeking escape via self-harm. Furthermore, Williams suggested that if the person who feels trapped perceives support from others, he or she would recover and the motivation to escape would fade away. Thus, Williams' cry of pain model suggests that self-harm represents a reaction ("cry") to a situation that has three main components: defeat, no escape and no rescue (Williams & Pollock, 2001). Williams also argued that psychological factors might influence a person's sensitivity to defeat, his or her judgements about how escapable a situation is and judgements about the availability of support from others.

Among the psychological factors that might affect the sensitivity of individuals to experiences of defeat, the cry of pain model identifies attention processes. Williams and Pollock (2001) suggest that some individuals might have become sensitised, based on their past experiences, to interpret even neutral situations as potentially defeating. They describe the attention phenomenon of "perceptual pop-out", where a stimulus that is of interest to a person (e.g., loss or humiliation) appears to "jump out" from the environment. According to these researchers an individual who is sensitised to themes of defeat, for example, might interpret a neutral gesture from a work colleague as a sign of rejection. Moreover, Williams and Pollock (2000) suggested that individuals

who tend to be perfectionists might be particularly prone to feel defeated when their often unrealistic high standards are not met. Researchers have found that perfectionism is related to self-harm (O'Connor, 2007), particularly the social form of perfectionism in which individuals perceive that they need to fulfil standards set by others.

According to the cry of pain model, one critical psychological factor that contributes to the sense of being trapped is social problem-solving skills. Past research suggests that deficits in these skills play a major role in self-harm, with individuals who have engaged in this behaviour tending to generate fewer, less effective and more passive solutions to life's challenges (Clum & Febbraro, 2004). Williams, Barnhofer, Crane and Beck (2005) suggested that deficits in social problem-solving reduce coping options, contributing to the sense of being trapped when a situation becomes stressful. The cry of pain model further suggests that a critical aspect of a person's ability to solve problems is their ability to recall specific events from his or her past (Williams, 2001; Williams & Pollock, 2001). This overgeneral memory is believed to be linked to traumatic experiences during childhood (Williams, Barnhofer, Crane & Duggan, 2006) and to limit the person's capacity to retrieve specific details from the past that could help to generate ideas to solve current problems.

Psychological factors that might influence the perception that there is no rescue include, according to the cry of pain model, social support and the capacity to imagine positive events in the future.

Social support has long been considered as a protective factor for self-harm, particularly among women since they seem to be more willing than men to share their feelings and receive support from others (Murphy, 1998). Among participants with a history of self-harm, the capacity of imagining positive events that could occur in the future, or positive future thinking, appears to be inversely related to hopelessness (MacLeod et al., 2005). This latter finding appears to support the claim that difficulty in imagining positive future events contribute to the sense that there will be no rescue.

### **1.3.1 Evidence in Support of the Cry of Pain Model**

Two cross-sectional studies seem to provide preliminary support for the cry of pain model. O'Connor (2003) found that patients who were recently admitted to a hospital for engaging in self-harm ( $n = 30$ ) reported higher levels of defeat, and lower levels of escape potential and social support, than hospital controls ( $n = 30$ ). Moreover, O'Connor found that participants reporting low levels of escape potential who also perceived social support were less likely to report a history of self-harm. This latter finding indicates an interaction between escape potential and social support, where the latter might act as a protective factor for self-harm. Although this study used relatively few items to measure defeat (four items) and escape potential (two items), which could have impacted on the internal reliability of the scales, it provides valuable preliminary information about the association between key components of the cry of pain model and self-harm.

In a subsequent study, Rasmussen et al. (2010) used multi-item measures of defeat and entrapment (Gilbert & Allan, 1998) to assess these constructs among participants with and without self-harm. These participants also completed measures of social support, a task to measure positive future thinking and a self-report scale of suicide ideation. Rasmussen et al. compared three groups of participants: patients who have engaged in self-harm more than once ( $n = 67$ ); patients who engaged in self-harm only once ( $n = 36$ ) and a hospital comparison group ( $n = 37$ ). These researchers found that patients who have engaged in self-harm (once or more than once) reported higher levels of defeat and entrapment than the comparison group. Moreover, Rasmussen et al. found that patients with a history of self-harm also reported lower levels of social support. Additionally, these researchers found that among patients with a history of self-harm the relationship between defeat and suicide ideation was accounted for, as suggested by the cry of pain model, by feelings of entrapment. Yet, in contrast with O'Connor (2003) previous study where social support moderated the relationship between escape potential and self-harm, Rasmussen and collaborators did not find evidence to support the claim that social support reduced the risk of suicide ideation. Rather, these researchers found that the capacity to generate positive future thoughts moderated the relationship between entrapment and suicide ideation.

In sum, the studies conducted by O'Connor (2003) and Rasmussen et al. (2010) suggest that two main components of the

cry of pain model, specifically defeat and entrapment, are associated with self-harm thoughts and behaviour. Additional research seems to support this latter claim. Recently, Taylor, Gooding, Wood and Tarrier (2011) conducted a systematic review of the relationship between defeat, entrapment and a number of psychological difficulties including suicidality. These researchers concluded that there is evidence to support the claim that defeat and entrapment are related to suicidality.

Although the cry of pain model views defeat and entrapment as distinct constructs, recent research suggests that the distinction might not be clear-cut. Feelings of defeat and entrapment are often measured with the defeat and entrapment scales developed by Gilbert and Allan (1998). Using these scales, a recent factor analytic study found that a single construct, defined as a sense of failure without a way forward, could be underlying the scores on the defeat and entrapment scales (Taylor, Wood, Gooding, Johnson & Tarrier, 2009). An alternative view is that defeat and entrapment are overlapping yet distinct constructs (O'Connor, 2011). Although more studies are needed to further understand the distinction between defeat and entrapment, it appears that the sense of being trapped in an unbearable situation is a predominant motivation for self-harm. For this reason, the present research mainly focused on feelings of entrapment.

Entrapment is generally measured with the Entrapment Scale developed by Gilbert and Allan (1998). This scale is comprised of two subscales that were designed to measure motivation to escape

from internal situations such as feelings and thoughts (i.e., internal entrapment subscale), and motivation to escape from external situations such as obligations or relationships (i.e., external entrapment subscale). However, the present research focused on a the global measure of entrapment, or total entrapment, which is obtained by summing the scores of both subscales. It focused on total entrapment for three main reasons: first, because no prediction was made about a differential relationship between attachment insecurities and internal entrapment in the one hand, and external entrapment on the other. Second, because previous research in the area of self-harm has used the full score of the Entrapment Scale (e.g., Rasmussen et al., 2010). Third, because both the internal and external entrapment subscales have been found to be associated with self-harm thoughts and behaviour (Taylor et al., 2011), suggesting that motivation to escape from either internal or external situations is an important correlate of self-harm.

In sum, the cry of pain model seems to identify in some detail a proximal process that may lead to self-harm. Specifically, that real or imagined experiences of defeat, loss or humiliation contribute to a sense of being trapped from which a person might escape via self-harm. Furthermore, the model seems to highlight how this proximal process could be linked with distal factors, such as individual difference variables, because it posits that some individuals might be more susceptible than others to view an event with the lenses of defeat and entrapment (Williams, Crane, Barnhofer & Duggan,



2005). Models building on the cry of pain model seem consistent with this by mapping how distal factors might work together with proximal processes to increase the risk of self-harm (O'Connor, 2011; O'Connor, O'Carroll, Ryan & Smyth, in press). One distal factor that might work together with the proximal process of wanting to escape could be an insecure attachment style.

#### **1.4 Integration of an Attachment Perspective on Self-harm and the Cry of Pain Model**

There are a number of reasons for exploring an integration of the attachment perspective of self-harm and the cry of pain model. First, the attachment perspective of self-harm and the cry of pain model have important similarities. Second, a number of theoretical studies suggest that early attachment experiences might be involved in later experiences of defeat and entrapment. Finally, there is indirect evidence suggesting an association between attachment insecurities and feelings of defeat and entrapment.

##### **1.4.1 Similarities between the Attachment Perspective of Self-harm and the Cry of Pain Model**

The attachment perspective of self-harm and the cry of pain model have four important similarities: (a) the suggestion that individuals are influenced by evolutionary old mechanisms that influence reactions to distress; (b) the recognition that a stressful experience characterised by loss, defeat or humiliation is an important antecedent of self-harm; (c) the experience of overwhelming distress as a motivation for self-harm; and (d) the

suggestion that people vary between each other in their susceptibility to stressful situations.

Ethology is at the basis of the attachment view of self-harm and the cry of pain model, and both of them highlight the existence of evolved mechanisms that influence how individuals react to stressful situations. Both Bowlby and Williams drew on ethology research to further understand human behaviour. Whereas Bowlby used concepts from primate ethology to further understand how the quality of early relationships with caregivers impact later psychological and social functioning, Williams explored the phenomenon of arrested flight to generate hypotheses about how stressful situations might trigger self-harm. Attachment theory posits the existence of an evolved behavioural system, the attachment-system, that promotes proximity to a primary caregiver when an individual faces threat. The quality of the interactions with the primary caregivers is believed to be the basis for how individuals appraise and cope with stressful situations later in life (Shaver & Mikulincer, 2006). The cry of pain model posits the existence evolutionary primitive mechanisms that can trigger involuntary reactions to stressful events, particularly those characterised by defeat loss and humiliation (Williams, 2001). Thus, both the attachment view of self-harm and the cry of pain seem to suggest that innate and evolutionary old mechanisms influence humans' reactions to distress.

Another more specific similarity between the models is that both identify experiences of loss, defeat or humiliation as

precipitants of self-harm. Whereas the attachment perspective on self-harm links these experiences to interpersonal difficulties, Williams (2001) model seems to broaden these experiences to include both interpersonal and intra-personal problems. Thus, both models posit that the experience of defeat, loss, or disappointment plays an important role in self-harm.

Another important similarity between the models is that in response to these experiences of loss, defeat or humiliation, the models suggest that individuals might experience overwhelming distress that may motivate self-harm. The attachment model (Adam, 1994) views this state as an attachment crisis, where an individual is immobilised by anxiety, anger and overwhelming distress that could result in self-harm behaviour. In response to this crisis, the individual is believed to engage in what is viewed as extreme attachment behaviour that has the purpose of avoiding separation from an attachment figure. This latter view seems consistent with a functional approach of NSSI where this behaviour is viewed as having an interpersonal function, such as facilitating help-seeking (Nock, 2009). The cry of pain model views this state of overwhelming distress as a sense of being trapped by internal or external circumstances. In contrast to the idea that self-harm has the purpose of obtaining a response from others, the concept of entrapment suggest that self-harm is a reaction to an unbearable situation. Thus, the concept of entrapment seems broader than that of an attachment crisis, and it seems to be consistent with research findings where the desire to find relief from an unbearable situation

is a predominant self-reported motive for engaging in self-harm (Scoliers et al., 2009).

Finally, both models suggest that some individuals might be more sensitive than others to experiences of loss, rejection or disappointment, and to react negatively to these experiences. The attachment view on self-harm suggests that insecurely attached individuals, who are believed to have experienced child and family adversity, might be particularly sensitive to experiences of loss or rejection. This view seems consistent with recent research where insecurely attached individuals, particularly anxiously attached, experience psychological distress in response to imaginary rejection from their romantic partners (Besser & Priel, 2009). Furthermore, the attachment view of self-harm suggests that insecurely attached individuals have developed negative self-representations, ineffective affect regulation strategies and difficulties forming and maintaining interpersonal relationships. According to attachment researchers, when this vulnerable state of mind is coupled with loss or rejection it could result in overwhelming distress that could set the conditions for engaging in self-harm.

The cry of pain model suggests that a number of psychological factors, including individual difference variables, might affect the sensitivity of individuals to experiences of defeat and entrapment (Williams, Crane et al., 2005; Williams & Pollock, 2001). Individual difference variables such as perfectionism might contribute to the experience of defeat (Williams & Pollock, 2000), since perfectionism might lead people to set unrealistic standards

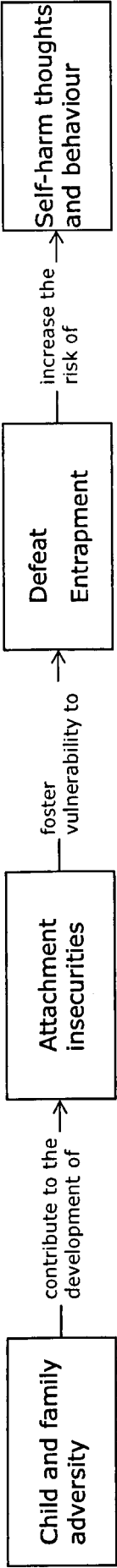
that, when unmet, may lead to a sense of failure. Deficits in social problem solving skills, on the other hand, might contribute to the sense of being trapped since ineffective solutions to life's challenges might reduce coping options and increase psychological distress (Williams, Barnhofer et al., 2005).

In sum, both the attachment view on self-harm and the cry of pain model were influenced by ethology research and posit that evolutionary old mechanisms influence human's reactions to distress. Furthermore, both models posit that experiences of loss, defeat or humiliation are particularly relevant for self-harm, yet the cry of pain model seems to broaden these experiences to include both interpersonal and intra-personal aspects. Similarly, both models suggest that in response to overwhelming distress an individual might engage in self-harm. However, whereas the attachment perspective appears to view self-harm as a way of influencing others, the cry of pain seems to suggest that this behaviour is a reaction to intolerable psychological pain—which research on the self-reported motives for this behaviour seems to confirm. Finally, and perhaps more importantly, both models suggest that people vary between each other in their susceptibility to experiences of loss or rejection and on their capacity to cope with them.

In this regard, the attachment perspective seems to provide information on how adverse familial conditions, which appear to be strongly associated with self-harm, foster vulnerability to this behaviour through the effects of attachment insecurities. In

contrast, the cry of pain model appears to posit the influence of psychological factors in the susceptibility to experiences of defeat and entrapment, yet it seems to provide less information on how this susceptibility links with childhood adversities. An exception to this is the origin of autobiographical memory, which the cry of pain model links with the experience of traumatic experiences during early childhood.

Taken together, the basis for this integration (illustrated in Figure 1) is that the attachment perspective on self-harm might inform about the origins of the sensitivity to defeat and entrapment, which the cry of pain model views as contributing to self-harm. Similarly, the proximal process leading to self-harm, delineated by the cry of pain model, might inform in more detail about how sensitivities developed in childhood translate into self-harm. Additional theoretical and empirical work suggests a link between attachment insecurities and later experiences of defeat and entrapment.



**Figure 1. Proposed Integration of the Attachment Perspective of Self-Harm and the Cry of Pain Model**

### **1.4.2 Theoretical Studies: Attachment, Defeat and Entrapment**

Two theoretical studies suggest that people with an insecure attachment could be prone to feel defeated and trapped. Sloman, Gilbert and Hasey (2003) examined social aspects of depression from attachment and social rank theory. According to social rank perspectives of depression, individuals who are unable to attain social positions or to become adept in particular skills could be at risk of exhibiting submissive-type behaviours (Taylor et al., 2011). Sloman et al. suggested that early attachment relationships are the first place where people learn about their capacity to elicit resources from others, such as care, support and attention. These researchers suggested that a child who experiences a difficulty in life, but receives support and reassurance from his or her caregivers, might not only learn to regulate distress but also to develop a sense of confidence in dealing with later life challenges. However, if a child when faced with difficulties is unable to receive care and support from caregivers, he or she might have difficulties dealing with distress and coping with defeats later in life.

In a rare theoretical exploration of the role of attachment on escape behaviour, Fischer-Mamblona (2000) proposed a developmental model to understand mental health problems. Fischer-Mamblona conducted an ethological study in which she observed the development of a goose that grew up in isolation. Based on the goose's behaviour, Fischer-Mamblona drew parallels to mental health problems. Throughout the goose's development, the



goose exhibited behaviour in which it anxiously approached other geese or avoided being close to them—what this researcher considered an indicator of attachment-disordered behaviour. When faced with stress the goose also exhibited a strong motivation to escape, such as erratic running even to the point of exhaustion. Fischer-Mamblona traced back this behaviour to the first phase of life, in her words:

If a gosling does not learn in its first days to attach itself to the mother, to follow her, to greet her and run to her if scared, thus taking refuge, then all the next phases cannot be accomplished, all other behaviour patterns will be largely obstructed by escape motivation. (p. 16)

Extending her observations to human behaviour, Fischer-Mamblona's (2000) view seems to suggest that people who lacked their caregivers' reassurance, care and support might develop, as the goose that she observed, a strong motivation to escape that could be linked with later psychological difficulties.

#### **1.4.3 Indirect Evidence: Attachment, Defeat and Entrapment**

A direct test of the correlation between attachment insecurities and defeat and entrapment has not previously been published, but there is indirect evidence suggesting an association. Sturman and Mongrain (2008) investigated the relationship between personality traits and variables derived from social rank theory. Among the variables examined, these researchers investigated the relationship between self-criticism, defeat and internal entrapment.

These researchers found that participants who tended to be self-critical were more likely to feel defeated and internally trapped. Since self-criticism appears to be closely related to attachment insecurities (Zuroff & Fitzpatrick, 1995), it is possible that these insecurities are also associated with defeat and entrapment. In another study, Irons and Gilbert (2005) examined the link between an insecure attachment and self-reported submissive behaviour. This behaviour, which could resemble a sense of being defeated, was more common among adolescents with high scores on an avoidant attachment scale (e.g., "I am uncomfortable to be close friends with other children") or an anxious attachment scale (e.g., "I often find that other children do not want to get as close to me than I want them to").

In a broader sense, attachment insecurities, defeat and entrapment could be related because past research shows that they are all linked with depression. Indeed, whereas attachment anxiety has been found to be associated with symptoms of depression characterised by overdependence and apprehension, attachment avoidance has been found to be associated with symptoms of depression characterised by self-criticism and perfectionism (Zuroff & Fitzpatrick, 1995). Depression seems to be closely related to defeat and entrapment (Gilbert & Allan, 1998) and a recent review of the literature on the role of defeat, entrapment on psychological problems seems to further support this claim (Taylor et al., 2011).

In sum, self-harm continues to be a major public health problem worldwide and young people seem to be at an increased

risk of engaging in this behaviour. Although research on self-harm has made significant advances in identifying what factors are associated with this behaviour, experts emphasise the need to further investigate how distal and proximal factors work together to increase the risk of self-harm. A consistently reported distal factor associated with self-harm is a history of child and family adversity, which attachment theory and research have linked with later psychological and social difficulties. Few studies have examined self-harm from an attachment perspective, yet some correlational, cross-sectional work provides valuable preliminary information about an association between attachment insecurities and self-harm. Further research using longitudinal designs is needed to examine mediators of this association, and the sense of being trapped appears to be one such mediator.

Motivation to escape appears to play a major role in the cry of pain model of self-harm, a model that has important similarities with the attachment perspective of self-harm. Specifically, both models suggest that evolutionary old mechanisms influence reactions to stressful situations; that experiences of loss, defeat and humiliation are involved in self-harm; and that overwhelming distress might set the conditions for this behaviour. Moreover, both models suggest that individuals vary between each other in their susceptibility to, and resources to cope with, experiences of loss and overwhelming distress. Since the attachment perspective seems to provide information about the origins of these vulnerabilities, and the cry of pain model appears to offer more detailed information about the

proximal processes that lead to self-harm, an integration of these models might provide a useful framework to investigate how distal and proximal factors work together to increase the risk of self-harm. If we know more clearly how these factors interact, we could better identify individuals at risk and the critical variables that need to be targeted in treatment. No study has investigated this issue, and the present research addresses this gap in knowledge.

### **1.5 The Present Thesis**

This research was set out to investigate whether components of attachment theory and the cry of pain model work together to increase the risk of self-harm. To address this issue, the present thesis investigated three inter-related topics.

First, the thesis examined whether the relationship between attachment insecurities and self-harm thoughts was mediated by feelings of entrapment. Self-harm thoughts were examined because they are considered to be an important precursor to later self-harm (Arria et al., 2009; Holden & Kroner, 2003). To examine this first question, two longitudinal Web-based surveys were conducted among university students. In the first survey, at baseline participants completed scales of attachment, entrapment and suicide ideation. Participants also completed a measure of defeat. About three months later, they completed the suicide ideation scale a second time (Chapter 2). The second survey used a similar methodology, but it focused on NSSI thoughts rather than in suicide ideation (Chapter 3). It focused on NSSI thoughts because they have been associated with attachment insecurities (Martin, Bureau,

Cloutier & Lafontaine, 2011), and because NSSI appears to be linked with a desire to escape an aversive state (Chapman, Gratz & Brown, 2006). As mentioned earlier, there has been some debate regarding the distinction between self-injurious behaviour with suicide intent and without suicide intent. This second survey aimed to contribute to this debate. If attachment insecurities are associated with NSSI thoughts through the effects of entrapment—as could be occurring in the case of suicide ideation—then this would suggest that similar psychological processes operate in both types of self-harm thoughts. As a consequence, one could argue that these thoughts form part of the same psychological phenomenon.

Second, if insecurely attached individuals are prone to feel trapped, which is believed to be the predominant motivation for self-harm (Williams, 2001), then it seems important to investigate what factors could protect them from feeling this way. One such factor could be social problem-solving, since it has been found to moderate the relationship between individual difference variables and suicide risk (Chang, 2002) and to be related to entrapment (Taylor, Wood, Gooding & Tarrier, 2010). To examine whether problem-solving moderated the relationship between attachment insecurities and entrapment, university students completed the MEPS as well as attachment and entrapment scales (Chapter 4). Participants also completed a measure of self-harm behaviour to examine whether attachment insecurities and feelings of entrapment related to actual behaviour and not only to self-harm thoughts.

In addition, since a diary approach to measure problem-solving might increase its ecological validity (Anderson, Goddard & Powell, 2011), in a subsequent study students with and without self-harm used a Web-based diary to record their daily problems and their attempts to solve them (Chapter 5). This latter study also examined the relationship between data derived from this diary approach for problem-solving, and measures of attachment and entrapment.

Finally, the present research examined whether attachment insecurities exacerbated feelings of defeat and entrapment in response to stressful events. To examine this, university students completed attachment, defeat and entrapment measures prior to taking part in computer tasks to manipulate feelings of defeat and entrapment. After taking part in these tasks, participants completed defeat and entrapment measures a second time (Chapter 6).

A review of the literature indicates that this is the first study to examine the relationship between components of the attachment perspective of self-harm and the cry of pain model.

## **2 Attachment Insecurities and Suicide Ideation: Exploring the Mediating Role of Defeat and Entrapment**

### **Abstract**

Suicide ideation is prevalent among university students and it is considered an important precursor for later suicidal behaviour (Arria et al., 2009). Past research has identified that an insecure attachment style increases the risk of suicide ideation (Lessard & Moretti, 1998; de Jong, 1992), but little is known of what could account for this risk. Although feelings of defeat and entrapment have been linked to an increased risk of suicidality (Rasmussen et al., 2010), no single study has examined whether these feelings mediate the relationship between an insecure attachment and suicide ideation. Using a Web-based survey among university students, the research presented in this chapter examined whether attachment insecurities were associated with suicide ideation, and whether this association could be accounted for by feelings of defeat and entrapment.

Results showed that there was a significant relationship between attachment insecurities, specifically attachment anxiety, and suicide ideation. Moreover, suicide ideation was associated with feelings of defeat and entrapment, feelings that increased as the level of attachment insecurities increased as well. However, there was no evidence to support the view that feelings of defeat and entrapment accounted for the relationship between attachment insecurities and suicide ideation. In conclusion, feelings of defeat

and entrapment did not mediate the association between an insecure attachment and suicide ideation; this mediation model needs to be investigated in future studies with larger samples.

## **2.1 Introduction**

Suicide is considered a leading cause of death among students at American universities, giving rise to a number of prevention programmes to reduce suicide risk (Haas, Hendin & Mann, 2003). Although the student suicide rate is almost half the rate of the general population matched for gender and age (Schwartz, 2006), there is growing concern about students' mental health. This is because students may face specific challenges at university, such as academic pressures, changes in family relationships and financial constraints (Tosevski, Milovancevic & Gajic, 2010).

Having ideas of committing suicide is considered as an important precursor for later attempted and completed suicide (Arria et al., 2009), and such suicide ideation is prevalent among university students. A recent study conducted among UK university students found that 10.7% of them experienced suicide ideation in the last few weeks (Stewart, Donaghey, Deary & Ebmeier, 2008). Past research indicates that people with suicide ideation are at risk of attempting suicide (Brezo et al., 2007) and that those who have attempted suicide are more likely to commit suicide in the future (Hawton & van Heeringen, 2009). These findings highlight the importance of investigating risk factors for suicide ideation among



students, as many of them could be at risk of attempting or committing suicide.

An important risk factor for suicide ideation is a history of child and family adversity, an adversity that may include neglect, family violence or emotional, physical and sexual abuse (Wagner et al., 2003). Among university students, Whitlock and Knox (2007) found that those who reported a history of sexual or emotional abuse were at an increased risk of reporting suicide ideation. As mentioned in the previous chapter, child and family adversity can have a profound impact on the person's later social and psychological functioning, and there is a need to further investigate the mechanisms that might underlie the relationship between this adversity and later suicidal behaviour. One framework which may further our understanding of these mechanisms is attachment theory (Mikulincer & Shaver, 2007). In Adam's (1994) view, adverse early attachment experiences foster the development of attachment insecurities that hinder the person's capacity to contain distress when faced with loss, rejection and disappointment. Few studies have investigated the relationship between an insecure attachment and suicide ideation; yet, those studies who have done so have found a significant relationship.

### **2.1.1 Attachment Insecurities and Suicide Ideation**

The studies that have investigated the relationship between attachment insecurities and suicide ideation vary between each other in the method used to measure attachment, the population studied and the design. For example, using semi-structured

interviews, Lessard & Moretti (1998) measured attachment styles among adolescent psychiatric patients with and without suicide ideation. These researchers found that adolescents with attachment insecurities, indicated by preoccupation or fearfulness about close relationships, were more prone to experience suicide ideation. Adam, Sheldon-Keller and West (1996) used a semi-structured interview to measure attachment styles among adolescent psychiatric patients with and without a history of suicide ideation and behaviour. They found that adolescents with an insecure attachment, indicated by an incoherent discourse when discussing traumatic childhood experiences, were more likely to have a history of suicidality.

Using self-report questionnaires, de Jong (1992) measured attachment styles among three groups of university students: a group with a history of ideation or suicide attempt, a group with depression and a control group. De Jong found that students with an insecure attachment, indicated by perceptions of unresponsive parenting, were more likely to have a history of suicidality. In the only prospective study found in the literature, Grunebaum et al. (2010) used self-report questionnaires to measure attachment styles among patients with depression. Grunebaum et al. found that at three months follow-up, attachment avoidance predicted suicide ideation.

Taken together, past research suggests that attachment insecurities are associated with suicide ideation among clinical and general populations. Yet, most of these studies have used a cross-

sectional design, highlighting the need of using longitudinal designs to examine whether attachment insecurities predict changes in suicide ideation. Moreover, it is unclear by what means attachment insecurities are related to suicide ideation. Identifying what mediates the relationship between attachment insecurities and suicide ideation is important, as it could provide information concerning what variables should be targeted in treatment to reduce suicide risk.

A review of the literature indicated that only one study investigated what could mediate the relationship between an insecure attachment and suicide ideation. DiFilippo and Overholser (2000) investigated whether depression mediated the relationship between an insecure attachment and suicide ideation. Using self-report questionnaires, DiFilippo and Overholser measured attachment styles among adolescent psychiatric patients. These researchers found that an insecure attachment was positively related with suicide ideation, and that this relationship was mediated by depression. Although this is an important finding, there is a need to investigate other factors apart from depression that can increase the risk for suicide ideation. This might be particularly important in research with university students, as most students with suicide ideation do not have depression (Arria et al., 2009). Theory and research suggest that feelings of defeat and entrapment are important risk factors for suicide ideation, both among clinical and student populations and while accounting for depression (Taylor et al., 2011). The study reported in this chapter will therefore examine

whether defeat and entrapment mediate the relationship between attachment insecurities and suicide ideation.

### **2.1.2 Defeat, Entrapment and Suicide Ideation**

A number of researchers have found that feelings of defeat and entrapment are related to suicide ideation. In a recent review article, Taylor et al. (2011) concluded that there is convergent evidence that defeat and entrapment are associated with an increased risk of suicidality. As mentioned earlier, Rasmussen et al. (2010) used self-report questionnaires to measure feelings of defeat, entrapment and suicide ideation among patients who have been admitted to a hospital after deliberately harming themselves. Rasmussen et al. found that as the feeling of defeat and entrapment increased, the level of suicide ideation increased as well. Recently, Taylor et al. (2010) used self-report questionnaires to measure defeat, entrapment and suicidality among university students. Taylor et al. (2010) found a positive relationship between feelings of defeat, entrapment and suicidality. Moreover, these researchers found that defeat and entrapment conceptualised as a single latent variable was strongly correlated with suicidality. This latter finding suggests that the combined sense of being defeated and trapped plays a major role in suicide ideation among university students.

If feelings defeat and entrapment mediate the relationship between an attachment insecurities and suicide ideation, there must be some indication that this feeling is also associated with an insecure attachment. A search of the literature, however, revealed that no single study has directly investigated the relationship

between attachment styles and feelings of defeat and entrapment. As suggested in the previous chapter, there are theoretical and empirical reasons to expect a relationship between an insecure attachment and feelings of defeat and entrapment.

### **2.1.3 Attachment Insecurities, Defeat and Entrapment**

The link between attachment insecurities and defeat is suggested by Sloman et al. (2003) theoretical study, where they posited that people who lacked adequate support from their caregivers may develop attachment insecurities that impair the capacity to cope with later set backs or defeats in life. The link between attachment and entrapment is suggested by Fischer-Mamblona's (2000) ethological study, in which she hypothesised that people who lacked their caregivers' reassurance and support develop—as the goose that she observed—attachment insecurities that may foster strong motivation to escape when situations become stressful. Empirically, attachment insecurities, defeat and entrapment may be related because they have been associated with depression.

In sum it is important to investigate risk factors for suicide ideation, as it is prevalent among students and it entails risk for further attempted and completed suicide. From an attachment perspective, researchers have found that attachment insecurities may increase the risk of suicide ideation. Yet, it is unclear whether these insecurities lead to changes in suicide ideation and, if so, by what means. Although depression may act as a potential mediator, there is a need to investigate other mediators as most students with

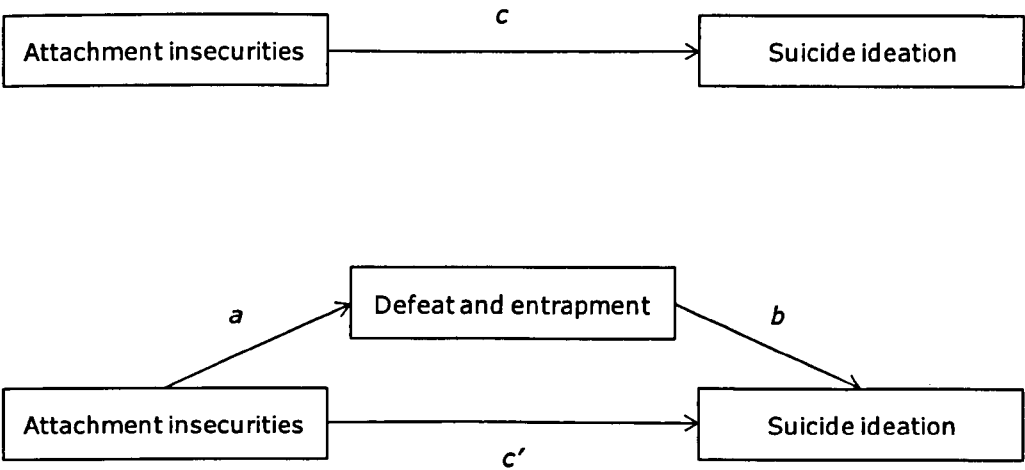
suicide ideation do not experience depression. Defeat and entrapment play an important role in suicidality, yet they have not been examined as potential mediators of the relationship between attachment and suicide ideation.

#### **2.1.4 The Present Study**

The present chapter reports a longitudinal study that examined whether attachment insecurities predict changes in suicide ideation, and whether these changes were accounted for by feelings of defeat and entrapment. More specifically, the study examined a mediation model in which defeat and entrapment mediate the association between attachment insecurities and suicide ideation. Figure 2 depicts this mediation model: attachment insecurities were expected to be significantly associated with suicide ideation (path *c*). In addition, attachment insecurities were expected to be significantly associated with defeat and entrapment (path *a*). Defeat and entrapment were also expected to be significantly associated with suicide ideation. Finally, attachment insecurities were expected to be no longer associated with suicide ideation (path *c'*), after taking into account the effect of defeat and entrapment on suicide ideation (path *b*).

To account for the influence of potential confounding variables, the study examined the role of depression and anxiety since past research suggests that they are highly comorbid and strongly associated with suicidality (Fawcett, 2001). To conduct a longitudinal analysis of these variables it was important that the outcome, suicide ideation, changed significantly over the course of

the study, since this would increase the chances of finding significant relationships (Twisk, 2004). To enhance the likelihood that suicide ideation would change over the course of the study, data collection was planned to be carried out during a non-exam period and an exam period; since past research suggests that during exams students may experience academic stress that may contribute to an increase in self-harm (Young, van Beinum, Sweeting & West, 2007). To reduce underreporting of suicide related topics, data collection was carried out using an anonymous Web-based survey (Baer, Saroiu & Koutsky, 2002; Nock et al., 2008). A review of the literature indicates that this is the first study to examine the relationship between attachment insecurities, defeat, entrapment and suicide ideation.



**Figure 2. Proposed Mediation Model: Defeat and Entrapment Mediating the Relationship between Attachment Insecurities and Suicide Ideation**

## 2.2 Methods

### 2.2.1 Participants

The target sample size was 300 participants, based on a previous study conducted by O'Connor and Noyce (2008) who used a longitudinal design to examine psychological predictors of suicide ideation among university students. In the present study the baseline survey was completed by 131 students ( $M_{\text{age}} = 20.05$  years,  $SD = 2.33$ ) of whom 103 (78.6%) were female. The follow-up survey was completed by 59 students ( $M_{\text{age}} = 20.29$  years,  $SD = 2.55$ ) of whom 54 (91.5%) were female. Students who completed the follow-up survey differed significantly from those who did not only in one aspect, gender; where females were more likely than males to complete the follow-up survey,  $\chi^2(1) = 10.63, p = .001$ . At follow-up the response rate was 45%.

### 2.2.2 Measures

**Attachment styles.** Attachment styles were measured with the Experiences in Close Relationships Questionnaire-Revised (ECR-R) a 36-item self-report questionnaire that measures the two underlying dimensions of attachment: attachment anxiety (e.g., "I often worry that my partner will not want to stay with me") and attachment avoidance (e.g., "I prefer not to be too close to romantic partners") (Fraley et al., 2000). Each dimension is measured by 18 items. Participants respond based on how they generally feel in emotionally intimate relationships. Response options consist of a seven-point scale ranging from "Disagree strongly" (score of 1) to "Agree strongly" (score of 7). Higher scores reflect higher levels of



the attachment dimension measured. Fairchild and Finney (2006) found good internal consistencies for the attachment anxiety ( $\alpha = .91$ ) and attachment avoidance ( $\alpha = .92$ ) subscales. In the present study, the internal consistency for both the attachment anxiety and attachment avoidance subscales was good ( $\alpha = .95$ ).

**Defeat.** Defeat was measured with the defeat scale (Gilbert & Allan, 1998), a 16-item self-report questionnaire that measures feelings of loss or failure (e.g., "I feel I have lost important battles in my life"). Participants respond based on how they have felt for the past seven days. Response options include a five-point scale ranging from "Never" (score of 0) to "Always" (score of 4). Higher scores reflect higher levels of defeat. Gilbert and Allan reported an internal consistency of  $\alpha = .94$ . In the present study, the internal consistency was  $\alpha = .97$ .

**Entrapment.** Entrapment was measured with the entrapment scale (Gilbert & Allan, 1998), a 16-item self-report questionnaire that measures motivation to escape from two types of situations: external (e.g., "I feel trapped by my obligations") and internal (e.g., "I would like to escape from my thoughts and feelings"). Motivation to escape from external situations, or external entrapment, is measured by 10-items; whereas motivation to escape from internal situations, or internal entrapment, is measured by six-items. Total entrapment is the sum of external and internal entrapment. Response options consist of a five-point scale ranging from "Not at all like me" (score of 0) to "Extremely like me" (score of 4). Higher scores reflect higher levels of entrapment. Past research has found

good internal consistencies for external ( $\alpha = .88$ ), internal ( $\alpha = .93$ ) and total entrapment ( $\alpha = .92$ ). As in previous studies (e.g., Rasmussen et al., 2010) this chapter will focus in total entrapment as a global measure of motivation to escape. In this study, the internal consistencies were good for external ( $\alpha = .93$ ), internal ( $\alpha = .95$ ) and total entrapment ( $\alpha = .96$ ).

**Suicide ideation.** Suicide ideation was measured with the Beck Scale for Suicide Ideation (BSS), a self-report questionnaire that consists of 21 groups of statements that measure the severity of suicide ideation (Beck & Steer, 1993). The first 19 group of statements measure the severity of a person's thoughts, plans and wishes to commit suicide. The last two groups of statements are informational and examine previous suicide attempts and intention to die during the last attempt. The severity of suicide ideation is measured by summing the scores of the first 19 group of statements. Within each group, the statements reflect increasing severity of suicide ideation (e.g., "I have no desire to kill myself [score of 0], "I have a weak desire to kill myself [score of 1] and "I have a moderate to strong desire to kill myself" [score of 2]). Higher scores reflect higher levels of suicide ideation. Participants respond on how they have felt in last week. Beck and Steer reported an internal consistency of  $\alpha = .90$  for the first 19 group of statements. In the present study the internal consistency was  $\alpha = .96$ .

**Depression and anxiety.** Depression and anxiety were measured with the Hospital Anxiety and Depression Scale (HADS), a 14-item self-report questionnaire that measures the extent to which

people experience symptoms of anxiety (e.g., "I get a sort of frightened feeling as if something awful is about to happen") and depression (e.g., "I feel as if I am slowed down") (Zigmond & Snaith, 1983). Anxiety and depression are measured by seven items each and participants respond based on how they have felt for the past week. Response options consist of a four-point scale ranging, for example, from "Not at all" (score of 0) to "Nearly all the time" (score of 3). Higher scores reflect higher levels of either depression or anxiety. In the present study, the internal consistency for anxiety was  $\alpha = .84$  and for depression  $\alpha = .85$ .

### **2.2.3 Procedure**

The Web-based survey was carried out at the University of Nottingham, where general examinations take place in January and May. Based on these examination periods, the baseline (non-exam) survey was planned to be completed during late November and early December 2008, whereas the follow-up (exam) survey was planned to be carried out during mid May and early June 2009. To determine whether the baseline and follow-up surveys represented a non-exam and exam periods, the surveys included the question "In the next month, do you have academic examinations or coursework submissions?". This question included information about coursework submissions because some courses, such as architecture, are often assessed with coursework rather than with exams. Response options were "yes" or "no".

Students were invited to participate in the study either through classroom announcements, leaflets distributed across the

campus or e-mails sent to volunteers for psychological studies. When inviting students to participate they were informed, either in verbal or written form, that the survey examined "suicidal thoughts and behaviours". Due to a technical problem many of the volunteers for psychological studies received the invitation e-mail until January 2009, when one of the university's exam periods had already begun. By then few students had completed the survey and to increase the sample size the first data collection period was extended till the beginning of March 2009. As a consequence, the baseline survey included a non-exam and an exam period. The follow-up survey was carried out as originally planned.

The Web-based survey was held by a secure server and showed information about support centres at the bottom of every its web pages. The first web page of the survey described the study in more detail and asked for the students consent to participate by clicking a "yes" or "no" option. If students clicked "yes", they were shown the instructions and measures of this study. If students clicked "no", they were shown a web page that thanked for their interest in the study and provided the researcher's contact details. The Web-based survey included different measures of psychological distress and other mental health problems. The software (Test Pilot Classic) used to design the Web-based survey did not allow for random presentation of measures. Participants who completed only the baseline survey were entered into a prize draw of £50, whereas participants who completed both the baseline and follow-up survey were entered into a prize draw of £100.

The study was approved by the School of Psychology Ethics Committee at the University of Nottingham.

#### **2.2.4 Statistical Analysis**

Baron and Kenny's (1986) mediation method tested the model illustrated in Figure 2. Baron and Kenny's method is widely used to examine whether an independent variable affects an outcome variable through its effects on a third, mediator variable. According to this method, mediation is demonstrated when the following conditions are met: first, the independent variable (i.e., insecure attachment) affects the mediator (i.e., defeat and entrapment) (path *a* in Figure 2); second, the independent variable affects the outcome variable (i.e., suicide ideation) (path *c* in Figure 2); third, the mediator affects the outcome variable while accounting for the effects of the independent variable (path *b* in Figure 2); and fourth, the strength of the relation between the independent variable and the outcome is significantly reduced when the mediator is added to the model (path *c'* in Figure 2).

Following the recommendations of Preacher and Hayes (2004), a bootstrapping sampling procedure assessed whether or not the effect of the independent variable on the outcome was significantly reduced upon the addition of a mediator to the model. These researchers suggested that this bootstrapping procedure yields more accurate estimates of the indirect effect because it makes no assumptions of the sampling distribution of the indirect effect. The test of the indirect effect using the bootstrapping procedure was conducted with the indirect computational aide for

SPSS, setting the number of bootstrap re-samples to 5000 (Preacher & Hayes, 2008).

## **2.3 Results**

### **2.3.1 Attachment, Defeat, Entrapment and Suicide Ideation: Analysis of Longitudinal Data**

At follow-up, 59 students completed the survey. To examine whether attachment predicted changes in suicide ideation over time, it first seemed important to examine whether the data collection points represented non-exam and exam periods, and whether suicide ideation changed significantly over time. A significant change over time in the outcome variable would justify a longitudinal analysis (Twisk, 2004).

From baseline to follow-up an increase was expected in the percentage of students with exams or coursework submission, as well as an increase in the level of suicide ideation. Results showed, however, that from baseline to follow-up the majority of students reported having exams or coursework and that suicide ideation remained mostly unchanged (Table 2.1). Having exams or coursework submission in the next month was reported by 45 (76.3%) students at baseline and by 47 (79.7%) at follow-up. These percentages were not significantly different from each other based on the results of the McNemar test of dependent proportions,  $p = .815$ .

**Table 2.1 Exams/Coursework and Suicide Ideation at Baseline and at Follow-up**

Variable	Baseline	Follow-up	% increase	<i>p</i> -value
Exams/coursework	76.3%	79.7%	3.4%	.815
Suicide ideation <sup>a</sup>				
<i>M</i>	3.68	3.05	–	–
<i>SD</i>	7.96	7.44	–	–
Range	0-32	0-35	–	–
<i>Mdn</i>	0	0	–	–
Prevalence	27.6%	31.0%	3.4%	.727

*Note.* *n* = 59.

<sup>a</sup>One case with a missing value in follow-up suicide ideation.

Prior to examining whether suicide ideation as measured with the BSS increased from baseline to follow-up, scores on this scale were explored for missing values and skewed distributions. The single case with a missing value in the follow-up BSS was removed from the analysis. Severe positive skewed distributions were found on the BSS both at baseline and at follow-up, suggesting that the assumptions of parametric inferential testing could be violated. Square root, logarithmic and inverse transformations failed to improved these distributions. As any positive response in the BSS items could reflect suicide ideation (Beck & Steer, 1993), the scores on this scale were dichotomised into: (a) no suicide ideation (a score of 0 in items 1–19); and (b) suicide ideation (a score of either 1 to 3 in items 1–19). This dichotomisation indicated that suicide ideation was reported by 16 students (27.6%) at baseline and by 18 (31.0%) at follow-up. These percentages, however, were not significantly different from each other based on the results of the McNemar test of dependent proportions,  $p = .727$ .

The previous analysis suggested that exams or coursework submission was not associated with suicide ideation. To examine this further two separate logistic regression analyses were carried out. The logistic regression analyses revealed that having exams or coursework submission was not significantly associated with suicide ideation at baseline (odds ratio [OR] = 0.66, 95% confidence interval [CI] = 0.18 – 2.35) nor at follow-up (OR = 2.32, 95% CI = 0.45 – 12.05). Thus, having exams or coursework submission was not associated with suicide ideation.

Of the 18 students who reported suicide ideation at follow-up 13 (72.2%) of them reported suicide ideation at baseline, suggesting a strong association between past and current suicide ideation. Indeed, a logistic regression analysis revealed that baseline suicide ideation was a strong predictor of follow-up suicide ideation (OR = 32.07, 95% CI = 6.71 – 153.31). This logistic regression also revealed a very large confidence interval for the predictor, suggesting that it could nearly perfectly predict the outcome (Tabachnick & Fidell, 2007) and that other predictors, if added to the model, would be non-significant. A sequential logistic regression analysis explored this latter possibility, with follow-up suicide ideation as outcome, baseline suicide ideation entered in the first block and the rest of the predictor variables entered simultaneously in the second block. Predictor variables (i.e., anxiety, depression, attachment styles defeat and total entrapment) were explored for missing values prior to entering them into the logistic regression model. Since the percentage of missing values on



the predictor variables was small (ranging from 1.7% to 3.4%), missing values were replaced with the sample mean of each variable or the median when the distribution was skewed (Katz, 2006).

The sequential logistic regression revealed that, after adjusting for baseline suicide ideation in the first block, none of the predictor variables were significantly associated with suicide ideation at follow-up. Indeed, baseline suicide ideation was the only significant predictor of suicide ideation at follow-up (OR = 24.56, 95% CI = 2.67 – 225.61).

In sum, suicide ideation was persistent, independent of exams or coursework submission and almost fully predicted by previous suicide ideation. This latter finding restricted testing the hypothesis that attachment insecurities predict changes in suicide ideation, and that these changes are accounted for by defeat and entrapment. As a consequence this hypothesis was tested with baseline data.

### **2.3.2 Attachment, Defeat, Entrapment and Suicide Ideation: Analysis of Baseline Data**

Prior to examining whether the relationship between attachment insecurities and suicide ideation was mediated by defeat and entrapment, baseline data ( $n = 131$ ) was explored for missing values, outliers and skewed distributions. Only one case had a missing value on the baseline suicide ideation variable and was therefore removed from the analysis. The percentage of missing values on the predictor variables was small (ranging from 0.8% to 3.8%) and as a consequence these values were replaced with the

sample mean of each variable or the median when the distribution was skewed (Katz, 2006).

Evaluation of the score distributions revealed moderate to severe positive skews in all but the attachment anxiety variable. Suicide ideation ( $M = 3.44$ ,  $SD = 7.14$ ) was dichotomised following the procedure mentioned above. This resulted in 43 (33.1%) cases with suicide ideation. Predictor variables with skewed distributions were examined for univariate outliers, which were defined as cases with  $z$  scores beyond  $\pm 3.00$  (Norman & Streiner, 2008). One positive outlier was detected in the depression measure, yet changing the score of this value or removing it altogether failed to improve its distribution. As a consequence this value was left unchanged (Tabachnick & Fidell, 2007). Square root transformations improved the distribution of attachment avoidance and defeat. However, these transformations—as well as logarithmic—resulted in negatively skewed distributions or failed to reduce the skew of anxiety, depression and entrapment. Since most of the variables showed skewed distributions, the Spearman's  $Rho$  correlation coefficient was used to examine bivariate relationships between the variables. The biserial correlation coefficient was used to examine bivariate relationships that included the suicide ideation dichotomised variable. For the bivariate analysis, a Bonferroni correction for nine variables resulted in  $\alpha = .005$ .

Table 2.2 shows the correlations between the main study variables. Defeat and total entrapment were strongly correlated ( $r_s = .86$ ,  $p < .001$ ), suggesting that these variables could be reflecting

a single psychological construct. For the purposes of this study, defeat and entrapment were combined by summing their individual scores to form a single variable named defeat-entrapment. Table 2.2 also reveals a positive relationship between attachment anxiety, attachment avoidance, defeat, entrapment and suicide ideation. Attachment anxiety and attachment avoidance were also positively related to symptoms of anxiety and depression. These results suggest that students with an insecure attachment tended to feel defeated, trapped and to experience suicide ideation. Furthermore, these students also experienced symptoms of anxiety and depression. It remains to be examined whether students with an insecure attachment tended to experience suicide ideation because they felt defeated and trapped, and whether this occurred while accounting for their symptoms of anxiety and depression. This was examined using Baron and Kenny's (1986) mediation method.

Table 2.2 Correlations between Anxiety, Depression, Attachment, Defeat, Entrapment and Suicide Ideation

Measure	1	2	3	4	5	6	7	8	9
1. Anxiety	-								
2. Depression	.63*	-							
3. Attachment anxiety	.52*	.51*	-						
4. Attachment avoidance	.26*	.38*	.50*	-					
5. Defeat	.62*	.72*	.66*	.39*	-				
6. Entrapment internal	.66*	.70*	.72*	.43*	.85*	-			
7. Entrapment external	.63*	.67*	.67*	.40*	.82*	.87*	-		
8. Entrapment total	.67*	.70*	.71*	.43*	.86*	.95*	.98*	-	
9. Suicide ideation	.53*	.73*	.62*	.46*	.77*	.76*	.74*	.77*	-
Mean	9.26	5.34	67.35	56.15	23.40	8.29	12.87	21.16	
Median	9.00	5.00	68.11	54.00	20.00	5.25	10.00	16.00	
(SD)	(4.09)	(4.21)	(24.38)	(22.38)	(14.71)	(7.89)	(9.91)	(17.28)	

Note.  $N = 130$ ; The biserial correlation coefficient was used for suicide ideation; Spearman's  $Rho$  correlation coefficient was used for the rest of the measures.

\* $p < .005$ , two tailed, with Bonferroni correction for nine measures.

Baron and Kenny's (1986) mediation method was tested using a series of sequential logistic regressions. The first block of these regressions adjusted for gender, as bivariate analyses revealed that this was the only demographic variable associated with suicide ideation; men were more likely than women to experience suicide ideation,  $\chi^2(1) = 10.55, p = .001$ . The second block adjusted for anxiety and depression. The third block included attachment anxiety and attachment avoidance simultaneously to test condition 2. The fourth block included the defeat-entrapment variable to test condition 3. To test condition 1, a separate logistic regression analysis was performed on defeat-entrapment as outcome and gender, anxiety, depression, attachment anxiety and attachment avoidance as predictors. A logistic regression was performed on the defeat-entrapment variable because it showed a severe positive skewed distribution, which led to a median split.

Table 2.3 presents the results of the mediation analysis. Attachment anxiety (OR = 1.03, 95% CI = 1.01 – 1.06), but not attachment avoidance (OR = 1.02, 95% CI = 0.99 – 1.04), was a significant predictor of suicide ideation after adjusting for male gender and symptoms of anxiety and depression. This indicated that as the level of attachment anxiety increased the likelihood of experiencing suicide ideation increased as well, thereby confirming condition 2 of mediation. In block 4 the defeat-entrapment variable was a significant predictor of suicide ideation (OR = 1.04, 95% CI = 1.01 – 1.07), but attachment anxiety was no longer a significant

predictor of this outcome (OR = 1.02, 95% CI = 0.99 – 1.05). This finding provided support for condition 3 of mediation.

**Table 2.3 Logistic Regression Analysis Testing Defeat-Entrapment as Mediator of the Association between Attachment and Suicide Ideation**

Block and variable	<i>b</i>	Wald statistic	Odds ratio	95% confidence interval for odds ratio		$\chi^2$	Nagelkerke $R^2$
				Lower	Upper		
Block 1						$\chi^2(1) = 10.02^{**}$	.10
Male gender	1.41	9.76	<b>4.09</b>	1.69	9.91		
Block 2						$\chi^2(3) = 54.70^{***}$	.48
Male gender	1.25	5.14	<b>3.51</b>	1.19	10.36		
Anxiety	0.07	0.88	1.08	0.92	1.25		
Depression	0.34	16.74	<b>1.41</b>	1.19	1.65		
Block 3						$\chi^2(5) = 65.03^{***}$	.55
Male gender	1.10	3.48	3.01	0.95	9.57		
Anxiety	0.03	0.14	1.03	0.88	1.22		
Depression	0.28	10.64	<b>1.33</b>	1.12	1.57		
Attachment anxiety	0.03	5.38	<b>1.03</b>	1.01	1.06		
Attachment avoidance	0.02	1.64	1.02	0.99	1.04		
Block 4						$\chi^2(6) = 70.76^{***}$	.58
Male gender	1.10	3.39	3.00	0.93	9.66		
Anxiety	-0.05	0.26	0.95	0.79	1.15		
Depression	0.19	3.85	1.21	1.00	1.46		
Attachment anxiety	0.02	1.11	1.02	0.99	1.05		
Attachment avoidance	0.01	0.89	1.01	0.99	1.04		
Defeat-entrapment	0.04	5.33	<b>1.04</b>	1.01	1.07		

Note.  $N = 130$ ; Bold type indicates statistical significance as determined by 95% confidence interval excluding unity.

$^{**}p < .01$ .  $^{***}p < .001$

A separate logistic regression analysis showed that attachment anxiety (OR = 1.08, 95% CI = 1.04 – 1.12), but not attachment avoidance (OR = 1.01, 95% CI = 0.98 – 1.04), was a significant predictor of defeat-entrapment while adjusting for male gender and symptoms of anxiety and depression. This indicated that condition 1 of mediation was met. However, the test of the indirect effect using a bootstrapping sampling procedure showed that the relationship between attachment anxiety and suicide ideation was not significantly reduced upon the addition of defeat-entrapment to the

model; as the bootstrapping point estimate of .0180 had a 95% confidence interval of -0.0016 to 0.0400.

## **2.4 Discussion**

Using a longitudinal Web-based survey, this study examined whether attachment insecurities among university students predicted changes on suicide ideation, and whether these changes could be accounted for by feelings of defeat and entrapment. The Web-based survey was designed to be available during a non-exam (baseline) and exam period (follow-up) to increase the chances that suicide ideation would vary over the course of the study. However, due to a technical problem the survey was available in periods when most students had exams. Independently of the exam period, suicide ideation was persistent across both time points and baseline suicide ideation was the strongest predictor of suicide ideation at follow-up. For this reason, the relationship between attachment insecurities, defeat, entrapment and suicide ideation was analysed with baseline data. The results of this analysis showed that suicide ideation was associated with attachment insecurities and feelings of defeat and entrapment. Moreover, as the levels of defeat and entrapment increased the level of attachment insecurities increased as well. However, there was no evidence to support the view that feelings of defeat and entrapment accounted for the relationship between attachment insecurities and suicide ideation.

### **2.4.1 Presence and Persistence of Suicide Ideation**

The presence of suicide ideation found in this study was higher than the presence reported in previous studies. Of the 131

students who completed the survey at baseline 33% reported suicide ideation. Previous studies have found a presence of suicide ideation that ranges between 2.77% (Zivin, Eisenberg, Gollust & Golberstein, 2009) to 10.7% (Stewart et al., 2008). The higher presence of suicide ideation found in the present study could be due to the recruitment strategy, the anonymity of the Web-based survey or the combination of both recruitment and anonymity procedures. As mentioned above, students were recruited by inviting them to take part in a survey about suicide thoughts and behaviours. This non-random sampling procedure might have produced a non-representative sample of the student population. Since a previous study found that people with suicide ideation were prone to participate in mental health research (Pfeiffer, Szymanski, Dhawan, DiFranco, Valenstein & Zivin, 2010), it is possible that the sample of the present study overrepresented students with suicide ideation. Moreover, the non-random sampling procedure makes it difficult to estimate the prevalence of suicide ideation in a student population. Regarding the anonymity of the Web-based survey, researchers have found that computer-based (Turner et al., 1998) and anonymous (Safer, 1997) methods of data collection reduce the underreporting of sensitive topics and behaviours, such as suicide ideation. Alternatively, due to the combination of recruitment and anonymity, students with suicide ideation could have been overrepresented in the sample and also more likely to report suicide ideation because of the anonymity of the survey.



Suicide ideation was persistent across both time points of data collection. Fifty-nine students completed the baseline and follow-up surveys. Of these students, 18 reported suicide ideation at follow-up and 13 (72.2%) of them reported suicide ideation at baseline. During both data collection periods most students had exams or coursework submission in the following month, but the analysis did not reveal a significant relationship between having exams or coursework and suicide ideation. Thus, independently of university exams or coursework submissions, suicide ideation remained persistent. Although the period between baseline and follow-up was short (average of 2.8 months), the persistence of suicide ideation found in this chapter is consistent with past research. Zivin et al. (2009) found that suicide ideation among university students was persistent in a period of two years, suggesting that suicide ideation among students could be chronic.

#### **2.4.2 Attachment Insecurities and Suicide Ideation: Defeat and Entrapment as a Mediator**

The main purpose of this study was to investigate whether feelings of defeat and entrapment mediated the relationship between attachment insecurities and suicide ideation. The main findings of this study suggest that attachment insecurities are related to suicide ideation and feelings of defeat and entrapment. However, feelings of defeat and entrapment do not appear to mediate the relationship between attachment insecurities and suicide ideation.

Students with an insecure attachment, specifically attachment anxiety but not attachment avoidance, were prone to experience suicide ideation—independently of symptoms of anxiety and depression. Consistent with past research, this study showed that people with an insecure attachment were at risk of reporting suicide ideation (e.g., de Jong, 1992). Contrary to DiFilippo and Overholser's (2000) study, the present study found that the relationship between an insecure attachment and suicide ideation was not accounted for by depression. This finding provides evidence in support of the view that other factors apart from depression could increase the risk of suicide ideation among university students (Arria et al., 2009). Alternatively, it is possible that students generally experience low levels of depression in contrast to participants from clinical samples who may experience higher levels of depression.

Students with attachment insecurities were prone to feel defeated and trapped, and these feelings appear to form a single variable. This is the first study to provide evidence to support an association between attachment insecurities and feelings of defeat and entrapment. The bivariate correlations showed that both attachment anxiety and attachment avoidance were related to feelings of defeat and entrapment. Based on past theoretical studies about the relationship between an insecure attachment and defeat (Sloman et al., 2003) and entrapment (Fischer-Mamblona, 2000), the findings of this study support the view that people who lacked the care and support from their caregivers may develop attachment insecurities that foster vulnerability to feelings of defeat and

entrapment. Consistent with past research defeat and entrapment were strongly related, suggesting that these feelings could form a single psychological construct—that of a sense of failure without a way forward (Taylor et al., 2009). However, future research is needed to understand the relationship between defeat and entrapment, since these variables could be distinct but overlapping constructs (O'Connor, 2011).

Among university students, attachment insecurities—specifically attachment anxiety—were related to suicide ideation, but this relationship was not statistically significant once feelings of defeat and entrapment were taken into account. Previous research has found that defeat and entrapment are strong predictors of suicide ideation, even after adjusting for other important risk factors (Taylor et al., 2011). As such, the sense of failure without a way forward appears to be strongly associated with suicide ideation. However, the bootstrapping procedure to test the indirect effect revealed that the effect of attachment anxiety on suicide ideation was not significantly reduced upon the addition of the defeat-entrapment measure. This finding disconfirms the idea that defeat and entrapment mediate the relationship between attachment insecurities and suicide ideation. One possible explanation for this finding is that the study could have had low power to detect a significant indirect effect, since the events-per-predictors ratio (i.e., number of cases with suicide ideation per number of predictor variables) was somewhat low (Babyak, 2004). Alternatively, it is possible that more complicated mediation models are needed to

explain the relationship between attachment insecurities and suicide ideation. It might be that the path from attachment insecurities, to defeat and entrapment and to suicide ideation is present only among individuals with low positive future thinking, but not among those with high levels of positive future thinking. This case of conditional indirect effect could be investigated in future research using larger samples.

### **2.4.3 Limitations**

The findings of this chapter should be interpreted in light of a number of limitations. First, the sample size was limited and as a consequence the results need to be replicated in future studies. A larger sample may be needed to examine a mediation model whereby defeat and entrapment mediate the relationship between attachment insecurities and suicide ideation. Second, the relationship between attachment, entrapment and suicide ideation was examined with cross-sectional data, and therefore it is not possible to disentangle the direction of the relations among these variables. It is possible that suicide ideation affects a person's attachment style or that suicide ideation leads a person to feel defeated and trapped. Third, sample characteristics may limit the generalisation of the findings. In particular, the results may not generalise to male university students. In addition, it is not possible to generalise to different ethnic groups because this study did not assess ethnicity, and ethnicity seems to play an important role in suicidality (Hawton & van Heeringen, 2009). Finally, the mediation

analysis adjusted for depression and anxiety, yet it did not take into account other important variables such as hopelessness.

#### **2.4.4 Implications**

With these limitations in mind, one implication of this study is that suicide risk among students could potentially be reduced by identifying those with attachment insecurities and by treating feelings of defeat and entrapment. Assessing students' attachment style could provide an indication of which students could be at high risk of considering suicide. Treating feelings of defeat and entrapment could be accomplished by a number of cognitive-behavioural techniques (Taylor et al., 2011). For example, to reduce feelings of defeat Taylor et al. proposed that mental health professional could highlight clients' past successes to build a more positive identity. To reduce feelings of entrapment, Taylor et al. proposed that professionals could develop clients' problem-solving abilities to enhance their capacity to find solutions to stressful situations. Indeed, problem-solving therapies have been shown to be useful in the treatment of those who self-harm (Townsend et al., 2001).

#### **2.4.5 Conclusions**

An important area of investigation to reduce suicide risk among students is the examination of risk factors for suicide ideation. Although depression may play an important role in increasing the risk of suicide ideation, there is a need to further investigate other risk factors. From an attachment perspective, researchers have found that an insecure attachment is associated

with suicide ideation, yet little is known of what could explain or mediate this association. Feelings of defeat and entrapment appear to play an important role in suicidality, but no single study had examined whether these feelings mediate the attachment-suicide ideation relationship.

Based on cross-sectional data, the present chapter showed that individuals with suicide ideation were likely to be insecurely attached and to feel defeated and trapped. Moreover, feelings of defeat and entrapment were associated with attachment insecurities, but the present study has not yet provided evidence to support the view that these feelings explained why insecurely attached individuals tended to report suicide ideation. Longitudinal studies with baseline and follow-up separated by at least six months may be needed to further understand the direction of the relationships between attachment, defeat, entrapment and suicide ideation. Furthermore, future studies using larger samples could examine more complicated mediation models to explain the relationship between attachment insecurities and suicide ideation.

As mentioned in the previous chapter, researchers often distinguish between NSSI and suicidality on the basis of the intent to die associated with them. As with suicide ideation, having ideas about engaging in NSSI can be an important precursor for later NSSI behaviour. NSSI thoughts have also been found to be associated with a history of child and family adversity. Moreover, past research suggests an association between attachment insecurities and NSSI thoughts. It is therefore possible that the psychological processes

that operate in suicide ideation are similar to the processes that operate in NSSI thoughts. This possibility is examined in the following chapter.

### **3 Attachment Insecurities and NSSI Thoughts: Exploring the Mediating Role of Entrapment**

#### **Abstract**

Nonsuicidal self-injury (NSSI) is often distinguished from suicidal behaviour, as a number of studies suggest that these behaviours have different psychological correlates (Nock, 2010). However, studies that distinguish between NSSI and suicidal behaviour often find that these behaviours co-occur within the same person (e.g., Whitlock & Knox, 2007) and that people report similar motives for engaging in them (Brown, Comtois & Linehan, 2002). Researchers have therefore questioned whether NSSI and suicidal behaviour represent distinct behaviours, as similar psychological processes could be operating in both (Claes et al., 2010). If we can determine whether the psychological processes that operate in NSSI also operate in suicidal behaviour, we can better understand not only the relationship between NSSI and suicide attempts but also the nature of self-harm thoughts and behaviour in general. This chapter presents a study that examined the relationships between attachment, entrapment and NSSI thoughts—relationships that could be operating in suicidal behaviour. The study builds on the research design of the previous chapter, but added a number of strategies to increase response rates and to include a representative sample of university students.

Results showed that attachment insecurities were related to feelings of entrapment, but not to lifetime NSSI thoughts; these



thoughts were significantly associated with feelings of entrapment. The findings suggest that entrapment plays an important role in NSSI thoughts, but that the role of attachment insecurities in NSSI thoughts needs to be further investigated with comprehensive measures of attachment styles and among larger samples.

### **3.1 Introduction**

NSSI is defined as the direct and deliberate destruction of body tissue in the absence of intent to die (Nock, 2010). This behaviour, often associated with clinical populations, is also present among community populations including university students. It is estimated that 35% (Gratz, 2001) of university students have engaged in NSSI at least once in their lives. NSSI is a serious problem because it can lead to severe injuries that may require hospitalization or increase the risk for later suicidality (Lofthouse & Yager-Schweller, 2009). Indeed, Whitlock and Knox (2007) found that university students who engaged in NSSI were at risk of having a history of suicide ideation or suicide attempts. Although past research suggest a relationship between NSSI and suicide attempts, little is known of what could explain this relationship (Lofthouse & Yager-Schweller, 2009).

Researchers are increasingly interested in investigating why people have thoughts about engaging in NSSI, as an understanding of the causes of these thoughts may shed light on the nature of NSSI. For example, Nock, Prinstein and Sterba (2009) asked adolescents with a history of NSSI to carry a palmtop computer for a period of two weeks to record NSSI thoughts, as well as situations

and feelings preceding these thoughts. Nock et al. found that NSSI thoughts were often preceded by situations in which the adolescent was alone or experiencing negative affect. Using self-report questionnaires of known risk factors for NSSI, Martin et al. (2011) compared three groups of university students: (a) with NSSI thoughts only; (b) with NSSI actions; and (c) without NSSI thoughts and actions. Martin et al. found that, compared with the group of students without NSSI thoughts and actions, the groups with NSSI thoughts only and with NSSI were more likely to report a history of child and family adversity. Interestingly, the group of students with NSSI thoughts and the group with NSSI actions did not differ significantly in the risk factors examined except in sexual abuse; where the NSSI action group was more likely to report this type of maltreatment. Martin et al. concluded that NSSI thoughts and actions have common risk factors, and that one important risk factor is a history of child and family adversity.

### **3.1.1 Developmental Models of NSSI**

Developmental researchers are increasingly interested in understanding the link between child and family adversity and NSSI. From a developmental perspective the quality of the infant-caregiver relationship, which can lay the foundation for a person's attachment style, is believed to have a profound influence on how people cope with problems later in life (Yates, 2009). Developmental models of NSSI posit that disturbed family relationships—particularly maltreatment—are likely to have enduring and negative effects on a person's attachment style. The insecure attachment style that may

result from these adverse childhood experiences could lead to difficulties in a number of developmental competences, including the ability to regulate negative affect (Yates, 2004). The experience of intense negative affect may lead these people, according to the developmental model, to engage in NSSI as a coping mechanism to reduce negative affect. This view seems consistent with the experiential avoidance model (EAM) developed by Chapman et al. (2006), who proposed that the main function of NSSI is to avoid inner unpleasant and unwanted emotions.

A considerable number of studies support the link between an insecure attachment and difficulties in affect regulation (Mikulincer & Shaver, 2008). On the other hand, there is evidence to support the view that the function of NSSI may be the alleviation of intense negative affect. Indeed, a consistently reported motive for engaging in NSSI is the desire to get away from an aversive state (Klonsky, 2007). The relationship between attachment and NSSI, however, has received little attention from researchers, despite there being indications that this is an important area of investigation (Gratz, 2003).

### **3.1.2 Attachment Insecurities and NSSI Thoughts and Actions**

A review of the literature indicates that few studies have examined the relationship between attachment and NSSI thoughts and actions, but these studies suggest that a relationship exists. Only a minority of these studies examined NSSI thoughts and most

of them NSSI actions. The studies vary between each other in the method used to measure attachment and the population examined.

NSSI thoughts seem to be related to an insecure attachment as reflected by anxiety over abandonment and by perceived unavailability of parents. Levesque, Lafontaine, Bureau, Cloutier and Dandurand (2010) asked university students to complete an online questionnaire that included measures of romantic attachment and NSSI. Levesque et al. found that as the level of attachment anxiety increased, the likelihood of having NSSI thoughts in the past six months increased as well. Levesque et al. also included in the online questionnaire a measure of NSSI actions in the past six months, and they found that NSSI actions were associated with attachment anxiety. This provides support for the view that NSSI thoughts and actions have common risk factors, and in this case an insecure attachment. As mentioned above, Martin et al. (2011) investigated whether a history of child and family adversity was associated with NSSI thoughts and actions among university students. Martin et al. found that students who felt unprotected by their parents, who displayed anger or who exhibited fear of being abandoned—indications of an insecure attachment—were likely to report NSSI thoughts in the past six months.

The studies mentioned above suggest a relationship between attachment insecurities and NSSI thoughts. However, since these studies used a cross-sectional design it is unclear whether attachment insecurities predict NSSI thoughts or whether these thoughts produce changes in attachment. Longitudinal studies are

therefore needed to determine whether attachment predicts changes in NSSI thoughts. Moreover, it is not known what could mediate the relationship between attachment and NSSI thoughts. Determining what leads to NSSI thoughts is important because it may indicate which variables should be targeted in treatment to prevent NSSI actions, and possibly future suicidality. Indications of what could mediate the relationship between attachment insecurities and NSSI thoughts come from studies of attachment and NSSI actions.

Studies that have investigated the relationship between an insecure attachment and NSSI actions suggest that this relationship is mediated by difficulties in regulating negative affect. Kimball and Diddams (2007) investigated whether people with an insecure attachment engaged in NSSI because they tended to use maladaptive affect regulation strategies. To investigate this, Kimball and Diddams asked university students to answer a number of self-report questionnaires. Using structural equation modelling, these authors found that students with an insecure attachment were prone to engage in maladaptive affect regulation strategies (e.g., bingeing on food or engaging in reckless behaviour), and that these strategies were related to NSSI. In another study conducted among university students, Hallab and Covic (2010) investigated whether the relationship between an insecure attachment and NSSI was mediated by negative mood; such as anxiety, depression and stress. Using an online questionnaire, Hallab and Covic found that only stress mediated the relationship between an insecure attachment

and NSSI. Finally, in a study conducted among hospitalized psychiatric patients, Gormley and McNiel (2010) investigated whether depression mediated the relationship between an insecure attachment and NSSI. Based on patients' responses to a number of self-report questionnaires, Gormley and McNiel found that depression was a partial mediator of the attachment-NSSI relationship.

In short, there is evidence to support a relationship between attachment insecurities and NSSI thoughts and actions. The relationship between an insecure attachment and NSSI actions appears to be mediated by difficulties in the regulation of negative affect. But it is not known what could mediate the relationship between an insecure attachment and NSSI thoughts. Furthermore, past research has relied on cross-sectional designs and as a consequence it is unclear whether changes in attachment lead to changes in NSSI thoughts. As wanting to escape intense negative affect appears to be an important motivation for NSSI (Chapman et al., 2006), the present research proposes that the desire to escape—rather than the affect itself—is the critical variable that mediates the relationship between attachment and NSSI thoughts. This view highlights the role of the sense of being trapped in NSSI, and appears congruent with a recent interest in understanding NSSI using escape (or entrapment) models of suicidal behaviour.

### **3.1.3 Entrapment and NSSI**

Recently, Hoff and Muehlenkamp (2009) examined whether NSSI could be further understood using aspects of Baumeister's

(1990) escape theory. Hoff and Muehlenkamp suggested that this theory could be applicable to NSSI, as a consistently reported motive for NSSI is the need to reduce (escape) intense negative affect. As Baumeister's model involves personality (e.g., perfectionism) and cognitive (e.g., rumination) aspects that may increase vulnerability to self-harm, these researchers examined whether university students who engaged in NSSI tended to be perfectionists and to ruminate. Hoff and Muehlenkamp found that students who tended to ruminate were at an increased risk of reporting NSSI, leading them to conclude that escape theory could provide a useful framework to further understand NSSI.

The study of Hoff and Muehlenkamp (2009) described above is important because it suggests that cognitive factors associated with the desire to escape could be operating in NSSI. Yet, this study did not measure motivation to escape and thus it is unclear what is the role of this variable on NSSI. Furthermore, although Baumeister's (1990) escape theory is a very useful explanatory framework, it may not account for biological and social aspects associated with self-harm (O'Connor, 2003).

Incorporating biological and social aspects related to self-harm, Williams (2001) proposed a model where the sense of being trapped is a predominant motivation for this behaviour. The NSSI literature is consistent with this in that NSSI is generally precipitated by experiences of loss (Strong, 2005), is linked with psychological distress (Whitlock, Eckenrode & Silverman, 2006) and is associated with self-reported motives of wanting to escape an aversive state

(e.g., Chapman et al., 2006). In this regard, wanting to escape an aversive state seems to be an important motivation both for NSSI and suicide attempts (Brown et al., 2002).

Researchers who have investigated Williams (2001) model often measure motivation to escape using Gilbert and Allan's (1998) self-report measure of entrapment. However, a review of the literature indicates that no single study has examined the relationship between this measure of entrapment and NSSI thoughts or actions.

So far this chapter has reviewed evidence that suggests that an insecure attachment is associated with NSSI thoughts and that these thoughts could be associated with a sense of entrapment. If entrapment mediates the relationship between an insecure attachment and NSSI thoughts, it is also necessary to establish an association between an insecure attachment and entrapment. Based on theoretical and empirical studies about attachment, psychological distress and entrapment, the previous chapter provided evidence to support an association between an insecure attachment and entrapment. Both attachment anxiety and attachment avoidance were associated with entrapment. It thus seems possible that the relationship between an insecure attachment and NSSI thoughts is mediated by entrapment.

In sum, it is important to investigate risk factors for NSSI thoughts not only because these thoughts reflect emotional distress, but also because they could escalate into NSSI actions. From a developmental perspective, researchers have found that attachment



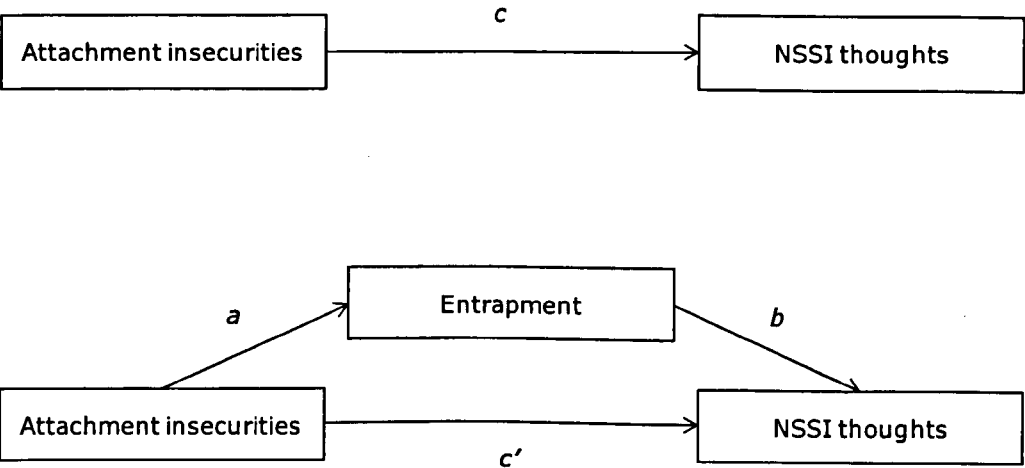
insecurities can affect a person's capacity to cope with life challenges, increasing the risk of NSSI as a way of alleviating intense negative affect. Although there is evidence to suggest that ineffective affect regulation strategies mediate the relationship between an insecure attachment and NSSI actions, no single study has examined what could mediate the relationship between attachment and NSSI *thoughts*. Furthermore, as previous studies of attachment and NSSI have used cross-sectional designs, it is unclear whether an insecure attachment predicts changes in NSSI thoughts over time. The sense of being trapped seems to be an important motivation not only for suicidal behaviour but also for NSSI. Entrapment could therefore explain why people with an insecure attachment are at risk of having NSSI thoughts. Determining whether an insecure attachment predicts changes in NSSI thoughts through its effect on entrapment could enhance our understanding not only of the causes of these thoughts, but also the nature of self-harm behaviour in general.

#### **3.1.4 The Present Study**

This chapter reports a longitudinal study that examined the relationship between attachment insecurities, entrapment and changes in NSSI thoughts over time. Specifically, entrapment was expected to mediate the relationship between attachment insecurities and NSSI thoughts (Figure 3). Based on the mediation model presented in Figure 3, attachment insecurities were expected to be significantly associated with NSSI thoughts (path c). A second prediction of this model was that attachment insecurities would be

significantly associated with feelings of entrapment (path *a* in Figure 3). Moreover, feelings of entrapment were expected to be related to NSSI thoughts. The mediation model also predicted that attachment insecurities would no longer be significantly associated with NSSI thoughts (path *c'* in Figure 3) after statistically adjusting for the effect of feelings of entrapment on NSSI thoughts (path *b* in Figure 3).

As in the study reported in the previous chapter, to enhance the likelihood that NSSI thoughts would change significantly over the course of the study data collection was carried out during a non-exam period and an exam period. This data collection points were chosen based on past research suggesting that during exams students may experience academic stress that may contribute to self-harm (Young et al., 2007). A thorough review of the literature indicates that this is the first study to examine the relationship between an insecure attachment, entrapment and NSSI thoughts.



## 3.2 Methods

### 3.2.1 Participants

As in the study reported in the previous chapter, the target sample size was 300 participants. The baseline survey was completed by 121 students ( $M_{\text{age}} = 22.39$  years,  $SD = 5.38$ ), of whom 73 (60.3%) were female. At follow-up the response rate was 77.7%; reflecting 94 students ( $M_{\text{age}} = 22.63$  years,  $SD = 5.93$ ), of whom 59 (62.8%) were female. There were not significant differences between students who participated at baseline but not at follow-up.

### 3.2.2 Measures

**Attachment styles.** Attachment styles were measured with the short version of the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998). A short version of this scale was chosen in an effort to reduce the length of the Web-based survey and to increase the response rate at follow-up. The Experiences in Close Relationships Scale short-form is a 12-item self-report questionnaire that measures two underlying dimensions of attachment: (a) attachment anxiety (e.g., "I need a lot of reassurance that I am loved by my partner"); and (b) attachment avoidance (e.g., "I try to avoid getting too close to my partner") (Wei, Russell, Mallinckrodt & Vogel, 2007). Attachment anxiety and attachment avoidance are measured by six items each. For each item, response options consist of a seven-point scale ranging from "Disagree strongly" (score of 1) to "Agree strongly" (score of 7). Higher scores reflect higher levels of the attachment dimension

measured. Wei et al. reported adequate internal consistencies for attachment anxiety ( $\alpha = .78$ ) and attachment avoidance ( $\alpha = .84$ ). In the present study, Cronbach's alpha coefficients also suggested adequate internal consistencies for attachment anxiety ( $\alpha = .75$ ) and attachment avoidance ( $\alpha = .83$ ).

**Entrapment.** Entrapment was measured with the entrapment scale (Gilbert & Allan, 1998), a 16-item self-report questionnaire that measures motivation to escape from situations that can be external (e.g., "I feel trapped by my obligations") or internal (e.g., "I would like to escape from my thoughts and feelings"). For each item, response options consist of a five-point scale ranging from "Not at all like me" (score of 0) to "Extremely like me" (score of 4). Higher scores reflect higher levels of entrapment. The sum of external (10 items) and internal entrapment (six items) provides the score of total entrapment, a global measure of motivation to escape that will be the focus of the present study. The internal consistencies were good for external ( $\alpha = .90$ ), internal ( $\alpha = .91$ ) and total entrapment ( $\alpha = .94$ ).

**NSSI thoughts.** NSSI thoughts were measured with items from the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos & Michel, 2007). The SITBI is a semi-structured interview that measures the presence, frequency and characteristics of a number of self-injurious thoughts and behaviours, including NSSI thoughts. The SITBI is divided in modules that correspond to different self-injurious thoughts and behaviours. Each module begins with a screening item that asks

about the lifetime presence of those thoughts and behaviours. If the screening item is confirmed then further items from that module are shown. If the screening item is not confirmed then further items from that module are not shown. For the NSSI thoughts module, the screening item is "Have you ever had thoughts of purposely hurting yourself without wanting to die? (for example, cutting or burning)". Response options were "yes" or "no". Participants who confirmed this screening item were shown an item that asked about NSSI thoughts in the past month: "During how many separate times in the past month have you thought about hurting yourself without wanting to die?". Participants who did not confirm the screening item of NSSI thoughts were not shown further items of NSSI, and they were assigned a value of zero in the variable of NSSI thoughts in the past month. The SITBI has shown strong interrater and test-retest reliability, as well as convergent validity with other measures of self-injurious thoughts and behaviours (Nock et al.).

**Depression and anxiety.** Depression and anxiety were measured with the Hospital Anxiety and Depression Scale (HADS), a 14-item self-report questionnaire that measures symptoms of anxiety (e.g., "I get a sort of frightened feeling as if something awful is about to happen") and depression (e.g., "I feel as if I am slowed down") experienced in the past week (Zigmond & Snaith, 1983). For each item, response options consist of a four-point scale ranging, for example, from "Not at all" (score of 0) to "Nearly all the time" (score of 3). Higher scores reflect higher levels of either depression (7 items) or anxiety (7 items). In the present study,

Cronbach's alpha coefficients suggested adequate internal consistencies for anxiety ( $\alpha = .79$ ) and depression ( $\alpha = .82$ ).

### **3.2.3 Procedure**

This longitudinal Web-based survey was similar to the one reported in the previous chapter, but added strategies to increase the response rate at follow-up and to recruit a more representative sample of the student population. To increase the response rate, the Web-based survey was shorter (Fan & Yan, 2010) and students received a survey pre-notification by short messaging service (SMS) and survey invitations by e-mail (Bosnjak, Neubarth, Couper, Bandilla & Kaczmirek, 2008). In addition, students received two reminder e-mails about the survey (Dillman, Smyth & Christian, 2009). To have a more representative sample of students this survey was advertised as a "Ways of Coping Survey".

The survey was carried out among students from the University of Nottingham and the data collection points intended to represent non-exam (November-December 2010) and exam (January 2011) periods. As in the study reported in the previous chapter, to make sure that the periods of data collection represented non-exams and exams the survey included an item asking whether students currently had exams or coursework submission. However, this time the item asked about having exams in the next two weeks, rather than in the next month, to examine whether being closer to exams had an impact on students' NSSI thoughts. Thus, the survey included the question "In the next two

weeks, do you have academic examinations or coursework submission". Response options were "yes" or "no".

Participants were recruited through announcements that were delivered in lectures, distributed (as leaflets) across the university, sent through e-mail to volunteers for psychological studies, or posted in an online experiment management system at the university. Either in verbal or written form, students were invited to participate in a study that investigated "students' ways of coping and how they evolve over time".

The first web-page of the survey described the study in more detail prior to asking for online informed consent to participate. The Web-based survey was held by a secure server and showed information about support services at the bottom of every of its web pages. The survey took about 15 minutes to complete and at the end of it students were asked to create an identification code (e.g., MJ021D1N) and to provide their e-mail address and mobile phone number. E-mail addresses and mobile phone numbers were kept separate from students' responses, and were used to contact participants closer to the date of the follow-up survey. The survey included a number of measures of psychological distress and other psychological constructs, but the software (Test Pilot Enterprise) used to design the survey did not allow for random presentation of measures.

To collect data for the follow-up survey, at the beginning of January 2011 students received on their mobile phones a pre-notification about the survey and the following day, on their e-mail

addresses, an invitation to it (including a URL link). A week later, students who had not completed the follow-up survey received a reminder e-mail. On the following week, students who had still not completed the survey received a final reminder e-mail. Participants who only completed the baseline survey were entered into a prize draw of £25, whereas participants who completed both the baseline and follow-up survey were entered into a prize draw of £50.

The study was approved by the Ethics Committee of the School of Psychology at the University of Nottingham.

### **3.2.4 Statistical Analysis**

The mediation model presented in Figure 3 was tested using Baron and Kenny's (1986) mediation method. As described in the previous chapter, this method establishes four conditions to test for mediation: the first condition is to show that the independent variable (i.e., insecure attachment) affects the mediator (i.e., entrapment) (path *a* in Figure 3). The second condition is to show that the independent variable affects the outcome variable (i.e., lifetime NSSI thoughts) (path *c* in Figure 3). The third condition is to show that the mediator affects the outcome variable while adjusting for the effects of the independent variable (path *b* in Figure 3). The fourth condition is to show that the strength of the relationship between the independent variable and the outcome is significantly reduced after adding the mediator to the model (path *c'* in Figure 3).



3.3 Results

3.3.1 Attachment, Entrapment and NSSI Thoughts in the Past Month: Analysis of Longitudinal Data

At follow-up, 94 students completed the survey. Prior to investigating whether attachment predicted changes in NSSI thoughts, first it was examined whether baseline and follow-up reflected a non-exam and an exam period, respectively. In addition, it was examined whether NSSI thoughts changed significantly over time. One case had missing values in the item that examined exams/coursework and in the item that asked about NSSI thoughts, and as a consequence this case was removed from the analysis.

As Table 3.1 shows, the percentage of students who reported exams/coursework increased significantly from baseline to follow-up, but NSSI thoughts in the past month remained mostly unchanged. Having exams or coursework submission in the next two weeks was reported by 68.8% of students at baseline and by 87.1% at follow-up. These percentages were significantly different from each other based on a McNemar test of dependent proportions,  $p = .005$ .

Table 3.1 Exams/Coursework and NSSI Thoughts in Past Month at Baseline and at Follow-up

Variable	Baseline	Follow-up	% increase	<i>z</i>	<i>p</i> -value
Exams/coursework	68.8%	87.1%	18.3%	-	.005
NSSI thoughts in past month					
<i>M</i>	1.26	1.22	-	-	-
<i>SD</i>	6.44	4.17	-	-	-
Range	0-60	0-30	-	-	-
<i>Mdn</i>	0	0	-	-1.10	.273
Prevalence	16.1%	19.4%	3.3%	-	.629

Note. *n* = 93.

The mean number of NSSI thoughts in the past month was 1.26 ( $SD = 6.44$ ) at baseline and 1.22 ( $SD = 4.17$ ) at follow-up. Inspection of the distribution of NSSI thoughts in the past month, both at baseline and at follow-up, revealed severe positive skews. Logarithmic and inverse transformations failed to improve the distribution and as a consequence non-parametric tests examined whether the number of NSSI thoughts in the past month increased from baseline to follow-up. The Wilcoxon signed-rank test revealed that at follow-up the number of NSSI thoughts in the past month ( $Mdn = 0$ ) was not significantly different from the number of these thoughts at baseline ( $Mdn = 0$ ),  $z = -1.10$ ,  $p = .273$ . As most of the participants did not report NSSI thoughts in the past month, this variable was dichotomised to further investigate its change over time. The NSSI thoughts variable (both at baseline and follow-up) was dichotomised into (a) no NSSI thoughts (a value of 0); and (b) NSSI thoughts (a value equal or greater than 1). This dichotomization revealed that 16.1% of students reported these thoughts at baseline and 19.4% at follow-up. The McNemar test of dependent proportions revealed that these percentages were not significantly different from each other,  $p = .629$ . In short, NSSI thoughts in the past month did not change significantly over time. The remainder of the analysis will use the dichotomised variables of NSSI thoughts in the past month.

Based on these findings, a longitudinal analysis seemed problematic because NSSI thoughts remained mostly unchanged. Moreover, there was a small ratio of events (i.e., cases with NSSI

thoughts in the past month) per predictor variables and as a consequence a longitudinal model based on these data could reduce statistical power or produce complicated relations that may not be generalised (Babiyak, 2004). With these caveats in mind, a sequential logistic regression explored whether NSSI thoughts at follow-up were associated with any of the predictor variables (anxiety, depression, attachment anxiety, attachment avoidance and total entrapment). The first block of this regression adjusted for baseline NSSI thoughts in the past month, the second block included the predictor variables simultaneously. The logistic regression revealed that after adjusting for baseline NSSI thoughts, only symptoms of anxiety and depression were significant predictors: whereas anxiety was associated with NSSI thoughts in the past month at follow-up (OR = 1.37, 95% confidence interval CI = 1.06 – 1.78, depression seemed to be associated with a decreased risk of reporting NSSI thoughts (OR = 0.73, 95% CI = 0.55 – 0.97). This latter finding is unexpected and should be viewed as tentative for the reasons mentioned above. The overrepresentation of females in the present sample may have contributed to this occurrence in that depressed females could have been more prone to seek help from others, resulting in more social support and a decrease in NSSI thoughts at follow-up. Compared to young men, young women have been found to be more likely to seek some form of help when mentally distressed (Biddle, Gunnell, Sharp & Donovan, 2004).

To test the relationship between attachment, entrapment and NSSI thoughts the following analysis used baseline data. Moreover, the analysis focused on *lifetime* NSSI thoughts rather than NSSI thoughts in the past month, since the former were more prevalent. As mentioned above, lifetime NSSI thoughts were assessed with the screening item of the NSSI thoughts module of the SITBI: "Have you ever had thoughts of purposely hurting yourself without wanting to die?". Response options were "yes" or "no". By using baseline data and by focusing on lifetime NSSI thoughts, the sample size increased to 121 and the number of events (i.e., cases with lifetime NSSI thoughts) to 45, resulting in a bigger ratio of events per predictor variables. This was important because it increased the statistical power to test the hypothesis that entrapment acts as a mediator of the relationship between attachment insecurities and NSSI thoughts.

### **3.3.2 Attachment, Entrapment and Lifetime NSSI Thoughts: Analysis of Baseline Data**

At baseline, 121 students completed the survey. Their data was explored for missing values, outliers and skewed distributions prior to examining the relationship between attachment, entrapment and lifetime NSSI thoughts. The single case with a missing value in the item that examined lifetime NSSI thoughts was excluded from the analysis. The percentage of missing values ranged between 0.8% to 5.8% among the measures of depression, anxiety, attachment styles and entrapment. As these percentages were small, missing values were replaced with the mean of each variable

or the median when the distribution was skewed (Katz, 2006). Attachment anxiety was the only normally distributed variable, with the rest of the variables showing moderate to severe positive skewed distributions.

Inspection of outliers, defined as cases with  $z$  scores beyond  $\pm 3.00$  (Norman & Streiner, 2008), revealed that the depression measure had a positive outlier. Changing the value of this outlier or deleting it did not improve the distribution of depression, and it was therefore left unchanged. Square root transformations improved the distributions of the entrapment external and entrapment total measure. However, square root and logarithmic transformations failed to improve the distribution of the rest of the variables. The Spearman's  $Rho$  correlation coefficient examined bivariate relationships between the variables, since most of them showed positive skews that did not improve with transformations. The point-biserial correlation coefficient examined relationships that included lifetime NSSI thoughts. A Bonferroni correction for eight variables resulted in  $\alpha = .006$  for the bivariate analysis.

Table 3.2 shows the interrelationships between the variables. Contrary to expected, lifetime NSSI thoughts were not significantly related to attachment insecurities. The relationship between lifetime NSSI thoughts and attachment anxiety ( $r_{pb} = .21, p = .023$ ) and attachment avoidance ( $r_{pb} = .07, p = .424$ ) were not significant at  $p < .006$ . Lifetime NSSI thoughts, however, were significantly and positively related to entrapment (internal, external and total) and anxiety. On the other hand, attachment anxiety and attachment

avoidance were significantly and positively related to entrapment (internal, external and total), as well as with anxiety. These results suggest that students with an insecure attachment were prone to feel trapped and anxious, and that these feelings were associated with lifetime NSSI thoughts. Using Baron and Kenny's (1986) method, the following analysis examined whether the association between attachment insecurities and NSSI thoughts was mediated by entrapment.

Table 3.2 Correlations between Anxiety, Depression, Attachment, Entrapment and Lifetime NSSI Thoughts

Measure	1	2	3	4	5	6	7	8
1. Anxiety	-							
2. Depression	.67*	-						
3. Attachment anxiety	.34*	.22	-					
4. Attachment avoidance	.29*	.30*	.29*	-				
5. Entrapment internal	.67*	.63*	.43*	.26*	-			
6. Entrapment external	.69*	.69*	.32*	.33*	.82*	-		
7. Entrapment total	.72*	.70*	.39*	.31*	.94*	.97*	-	
8. Life time NSSI thoughts	.30*	.16	.21	.07	.35*	.28*	.33*	-
Mean	8.88	4.56	21.83	17.94	7.30	10.93	18.23	
Median	8.00	4.00	21.91	18.00	6.00	9.00	15.00	
(SD)	(3.78)	(3.91)	(6.39)	(6.72)	(6.48)	(8.67)	(14.39)	

Note.  $n = 120$ ; The point-biserial correlation coefficient was used for lifetime NSSI thoughts; Spearman's  $Rho$  correlation coefficient was used for the rest of the measures.

\* $p < .006$ , two tailed, with Bonferroni correction for eight measures.

Baron and Kenny’s (1986) conditions were tested using a set of sequential logistic regressions. As age and gender were not significantly associated with lifetime NSSI thoughts, the logistic regressions did not adjust for these demographic variables. The first block of the regressions adjusted for anxiety, since the bivariate analysis showed that it was significantly associated lifetime NSSI thoughts. The second block included attachment anxiety and attachment avoidance simultaneously to test condition 2. The third block included total entrapment to test condition 3. To test condition 1, a separate logistic regression regressed entrapment total onto anxiety, attachment anxiety and attachment avoidance.

**Table 3.3 Logistic Regression Analysis Testing Entrapment as Mediator of the Association between Attachment and Lifetime NSSI Thoughts**

Block and variable	b	Wald statistic	Odds ratio	95% confidence interval for odds ratio		$\chi^2$	Nagelkerke $R^2$
				Lower	Upper		
Block 1						$\chi^2(1) = 11.44^{**}$	.12
Anxiety	0.18	10.22	<b>1.19</b>	1.07	1.33		
Block 2						$\chi^2(3) = 13.29^{**}$	.14
Anxiety	0.16	7.30	<b>1.17</b>	1.04	1.32		
Attachment anxiety	0.05	1.81	1.05	0.98	1.12		
Attachment avoidance	-0.01	0.05	0.99	0.93	1.06		
Block 3						$\chi^2(4) = 16.26^{**}$	.17
Anxiety	0.08	1.37	1.09	0.94	1.25		
Attachment anxiety	0.04	1.33	1.04	0.97	1.11		
Attachment avoidance	-0.02	0.42	0.98	0.92	1.04		
Total entrapment	0.03	2.91	1.03	1.00	1.07		

Note . n = 120; Bold type indicates statistical significance as determined by 95% confidence interval excluding unity.

**\*\*p** < .01.

Table 3.3 shows the results of the mediation analysis. Overall, these regressions suggested that attachment insecurities and feelings of entrapment were not associated with lifetime NSSI thoughts. In block 1 anxiety (OR = 1.19, 95% CI = 1.07 – 1.33)



was a significant predictor of lifetime NSSI thoughts. In block 2, attachment anxiety (OR = 1.05, 95% CI = 0.98 – 1.12) and attachment avoidance (OR = 0.99, 95% CI = 0.93 – 1.06) did not predict lifetime NSSI thoughts, indicating that condition 2 for mediation was not met: an insecure attachment was not a significant predictor of lifetime NSSI thoughts, but symptoms of anxiety were (OR = 1.17, 95% CI = 1.04 – 1.32). In block 3, total entrapment was not a significant predictor of lifetime NSSI thoughts (OR = 1.03, 95% CI = 1.00 – 1.07), indicating that condition 3 for mediation was not met.

A separate logistic regression revealed that an insecure attachment was not a significant predictor of total entrapment, indicating that condition 1 for mediation was not met. Neither attachment anxiety (OR = 1.02, 95% CI = 0.94 – 1.10) nor attachment avoidance (OR = 1.08, 95% CI = 0.99 – 1.17) were significant predictors of total entrapment, but symptoms of anxiety (OR = 1.66, 95% CI = 1.36 – 2.04) were. In short, based on Baron and Kenny's (1986) conditions for mediation, there was no evidence to support the claim that entrapment mediated the relationship between attachment insecurities and lifetime NSSI thoughts.

### **3.4 Discussion**

The purpose of this study was to investigate the relationship between attachment, entrapment and NSSI thoughts. It was expected that an insecure attachment would predict changes in NSSI thoughts over time, and that these changes would be explained by entrapment. Although the data collection periods

appeared to represent a non-exam period and an exam period, NSSI thoughts in the past month remained stable over time. As NSSI thoughts in the past month did not show a significant change over time, the data was not suitable for a longitudinal analysis. Furthermore, as relatively few students reported NSSI thoughts in the past month a longitudinal model based on this data could have low statistical power. As a consequence, the main analysis was carried out with baseline data; but now focusing on *lifetime* NSSI thoughts which were more common and this increased statistical power. The main analysis did not provide evidence to support a relationship between attachment insecurities and NSSI thoughts, or that this relationship was mediated by entrapment.

#### **3.4.1 Persistence of NSSI Thoughts**

Although exams/coursework increased at follow-up, NSSI thoughts in the past month remain mostly unchanged. One possible explanation of this finding is that NSSI thoughts are not associated with academic difficulties. Alternatively, it is possible that the time between baseline and follow-up was too short, which could have limited identifying significant variations over time. On the other hand, the persistence of NSSI thoughts found in this study could reflect real stability of these thoughts among university students. This view seems to be supported by a recent longitudinal study of NSSI among adolescents. Hankin and Abela (2011) found that over a period of two and a half years, 50% of adolescents who reported NSSI at follow-up also reported this behaviour at baseline. If NSSI thoughts among university students tend to be stable, this suggests

a need to further investigate what could reduce these thoughts in an effort to prevent them from evolving into NSSI actions.

### **3.4.2 Attachment Insecurities and NSSI Thoughts:**

#### **Entrapment as a Mediator**

The main purpose of this study was to investigate whether students with an insecure attachment were more prone to have NSSI thoughts, and whether this was due because these students felt trapped. In the bivariate and multivariate analysis of cross-sectional data, attachment insecurities were not associated with lifetime NSSI thoughts. To test whether entrapment acted as a mediator it was necessary to establish a relationship between attachment and NSSI thoughts. One possible explanation for the absence of a relationship between attachment insecurities and NSSI thoughts is that the short measures of attachment used in this study, although reliable, did not fully reflect the constructs of attachment anxiety and attachment avoidance. Schweizer (2011) suggested that shortened versions of psychological measures may be reliable, but could fail to comprehensively measure the underlying construct they are intended to measure. Alternatively, the study could have lacked enough statistical power, despite the effort made to increase the number of events per predictors by analysing lifetime NSSI thoughts. Future studies could use the completed measures of attachment styles with larger samples.

The bivariate analysis showed that students who felt trapped tended to report a history of lifetime NSSI thoughts. A review of the literature revealed that this is the first study to examine the

relationship between entrapment and NSSI thoughts. Consistent with previous studies that have found a relationship between motivations to escape from aversive affective states and NSSI (e.g., Brown et al., 2002 ), this study seems to support the view that the sense of entrapment is associated with NSSI. This finding is important because it suggest that an underlying motivation for both NSSI and suicidal behaviour could be a sense of being trapped. With this in mind, it is possible that NSSI and suicide attempts are related because people feel trapped and they attempt to find a way out by thinking about or engaging in self-harm. The results of the present study also showed that an insecure attachment was associated with feelings of entrapment. However, in the multivariate analysis an insecure attachment was not associated with entrapment while adjusting for current symptoms of anxiety. This finding could imply that anxiety is an important factor for understanding feelings of entrapment.

### **3.4.3 Limitations**

Although the study presented in this chapter extends the research on attachment and NSSI thoughts, it has a number of limitations that should be discussed. First, given the limited sample size the multivariate analysis could have low statistical power to detect significant relationships between attachment, entrapment and NSSI thoughts. Despite the efforts to increase the number of events per predictors by examining lifetime NSSI thoughts, the findings of the present study need to be replicated with larger samples. Second, as the analysis is based on cross-sectional data, it

is not possible to determine whether entrapment leads to NSSI thoughts or if it is the other way around. One possibility is that NSSI thoughts increase feelings of entrapment. Third, the findings of this study may not generalize to male university students as the majority of participants in the sample were female.

#### **3.4.4 Implications**

The findings of this study suggest two main implications. The first implication is that interventions that reduce entrapment could also reduce NSSI thoughts. Taylor et al. (2011) suggested that cognitive-behavioral techniques could reduce entrapment, and that those focusing in interpersonal social problem solving could be effective. The second implication is that entrapment could be an underlying motivation for NSSI thoughts, and possibly for NSSI actions. As such, entrapment may be viewed as a variable that could be targeted in treatment to reduce self-harm thoughts, irrespective of the intent to die associated with these thoughts.

#### **3.4.5 Conclusions**

NSSI thoughts and actions appear to be associated with child and family adversity and developmental researchers have formulated models to further understand how these early experiences relate to NSSI. Developmental models of NSSI posit that a history of child and family adversity can impact a person's attachment style, resulting in difficulties to regulate affect and an increase risk for engaging in NSSI as a type of self-cure (Yates, 2004). An insecure attachment and NSSI thoughts appear to be associated, but little is known of what could explain this association.

The sense of entrapment could explain this association, but no single study had examined this. Using cross-sectional data, this chapter suggests that entrapment may play an important role in NSSI thoughts, and as a consequence interventions aimed at reducing entrapment could also reduce the risk of NSSI. The role of attachment insecurities in NSSI thoughts, however, was less clear and this warrants further investigation among larger samples and using comprehensive measures of attachment styles.

The findings of the present chapter and the previous chapter suggest that entrapment plays an important role in NSSI thoughts and suicide ideation. It is thus important to investigate what psychological factors contribute to the sense of entrapment, particularly among insecurely attached individuals as they appear to be prone to feel trapped. The following chapter examines the role that attachment styles and social problem-solving might play in the development of feelings of entrapment.

## **4 Vulnerability to Entrapment: Exploring the Role of Attachment Styles and Social Problem-Solving**

### **Abstract**

Although entrapment has been found to be associated with depression, anxiety and self-harm (Taylor et al., 2011; Williams, 2001), few studies have investigated what factors contribute to the psychological state of feeling trapped. Social problem-solving skills are believed to be implicated in the development of feelings of entrapment (Williams, Crane et al., 2005) and attachment insecurities, as suggested by the previous two chapters, also appear to contribute to the sense of being trapped. However, it is unknown how attachment and problem-solving might work together to produce feelings of entrapment. Determining whether and how attachment styles and problem solving are related to entrapment can further our understanding not only of this risky psychological state, but also of self-harm. This chapter presents a study that investigated the relationship between attachment styles, social problem-solving, entrapment and self-harm.

Results showed that attachment insecurities were related to feelings of entrapment, and that as the level of problem solving skills increased feelings of entrapment decreased. However, there was no evidence to support the view that attachment insecurities and problem-solving interact in increasing the risk of feeling trapped. The analysis further revealed that compared to participants without self-harm, those with self-harm were more likely to report

attachment insecurities and feelings of entrapment. The study suggests that attachment insecurities are linked to entrapment, but it is still unclear whether problem-solving moderate this link; this could be further investigated in clinical samples and with different measures of problem-solving.

#### **4.1 Introduction**

D’Zurilla, Nezu and Maydeu-Olivares (2004) defined social problem-solving as the cognitive-behavioural process by which a person attempts to find effective solutions to everyday problems. A considerable number of studies have investigated the relationship between social problem-solving and self-harm, suggesting that deficits in problem-solving increase the risk of self-harm. For example, Arie, Apter, Orbach, Yefet and Zalzman (2008) compared social problem solving skills among three groups of adolescents: psychiatric patients who had attempted suicide, psychiatric patients who had not attempted suicide and a community control group. To measure problem-solving these researchers used the MEPS procedure, in which participants complete a number of hypothetical problems that have a beginning and an end but not the middle part. Compared with the other two groups of adolescents, the group of adolescents with a history of suicide attempts was more likely to produce less effective solutions and less relevant steps in reaching the solution.

In another study that investigated similar groups of adolescents, Orbach et al. (2007) found that adolescents with a history of suicide attempts were more likely to provide less relevant



solutions in the MEPS procedure. In addition, this group also tended to perceive life problems as a threat rather than as a challenge, which is believed to impair problem solving skills. Grover et al. (2009), in a different study, asked adolescent psychiatric patients to complete self-report measures of social problem solving and suicide ideation. The problem-solving measure examined adolescents' perceptions of their own problem solving ability. Grover et al. found that negative perceptions in problem solving were related to suicide ideation.

The link between deficits in social problem solving and suicidality is also supported by a systematic review. Speckens and Hawton (2005) conducted a systematic review of the research on social problem solving and suicidal behaviour among young people. These researchers concluded that there is some evidence that deficits in social problem solving are related to suicidal behaviour; although other variables, such as depression, could be playing an important role. Since past research suggests a link between social problem-solving and suicidality, researchers have posited models to understand this association. According to the cry of pain model of self-harm, deficits in social problem-solving are viewed as a factor that reduces coping options, leading a person to feel trapped and to seek escape via self-harm (Williams, Barnhofer et al., 2005).

#### **4.1.1 Entrapment and Problem-Solving**

A review of the literature indicates that only one study investigated the relationship between social problem-solving and entrapment. Taylor et al. (2010) investigated whether negative

appraisals about oneself and others contributed to feelings of defeat and entrapment, and whether these feelings led to suicidality among university students. These researchers measured self-appraisal of problem-solving and perceptions of the availability of social support. Their results showed that negative appraisals of oneself (as problem-solvers) and others (social support) were related to feelings of defeat and entrapment, and that these feelings were associated with suicidality.

The study conducted by Taylor et al. (2010) is important because it provides preliminary support for a link between problem-solving and entrapment. Yet, the study relied on a self-report measure of perceived problem-solving skills, and this type of measure might be particularly prone to distortion by number factors such as depression (Speckens & Hawton, 2005). Consequently, more objective measures of problem-solving skills, such as the MEPS, are needed to examine the purported link between these skills and entrapment.

#### **4.1.2 Attachment and Problem-Solving**

In exploring the combined role that attachment and problem solving might play in feelings of entrapment, there are a number of reasons for considering a model where social problem solving moderates the relationship between attachment insecurities and entrapment. First, researchers believe that attachment styles and problem solving are deeply influenced by the early family environment (Rich & Bonner, 2004), and it thus seems intuitive to expect a relationship between these factors. However, these factors

do not represent the same psychological construct and could therefore make independent contributions to entrapment. Past research has found moderate correlations between attachment styles and social problem solving. For example, Davila, Hammen, Burge, Daley and Paley (1996) found a correlation of  $r = .29$  between good communication with peers (an indicator of a secure attachment) and social problem-solving.

Second, past research has shown that social problem-solving can moderate the effect of individual difference variables on psychological distress, suggesting that problem-solving could also moderate the relationship between attachment insecurities and entrapment. Using self-report questionnaires among university students, Chang (2002) investigated whether social problem-solving moderated the association between perfectionism and psychological distress. Chang found that the relationship between perfectionism and suicide ideation depended on social problem-solving. Specifically, compared with students who were perfectionist but good problem solvers, those who were perfectionist and poor problem solvers tended to report more suicide related thoughts. As mentioned earlier, social problem solving-refers to the process in which a person tries to find effective solutions to problematic situations. It thus seems possible that people with an insecure attachment but with good problem solving skills will be less likely to feel trapped. In contrast, people with an insecure attachment and poor problem solving skills could be more prone to feel trapped.

Finally, past research suggests that problem-solving treatment may reduce psychological distress among people who have engaged in self-harm (Townsend et al., 2001) and that it could have the potential to reduce feelings of entrapment (Taylor et al., 2011). If the effect of attachment insecurities on entrapment depends on social problem-solving skills, treatment aiming at improving these skills could protect insecurely attached people from reaching a point of feeling trapped.

#### **4.1.3 The Present Study**

The main goal of the study reported in this chapter was to examine the relationship between attachment styles, social problem-solving and entrapment. Participants with attachment insecurities—as indicated by attachment anxiety and attachment avoidance—were expected to feel trapped, whereas participants with effective social problem-solving skills were expected to be less likely to feel trapped. In addition, people with attachment insecurities were expected to feel trapped depending on their social problem-solving skills. A second aim of the present study was to examine whether attachment insecurities, social problem-solving and entrapment predicted self-harm.

To accomplish these goals, university students with and without a history of self-harm attended individual sessions at a university based laboratory, where they completed computer-based questionnaires of attachment, entrapment and self-harm; as well as a widely used measure of problem solving—the MEPS procedure.

## 4.2 Methods

### 4.2.1 Participants

Seventy six participants took part in the study ( $M_{\text{age}} = 21.53$  years,  $SD = 2.93$ ), of which 57 (75%) were female and 19 (25%) were male. Only two (2.6%) participants were not attending or enrolled in university at the time of the study, but their data were retained for analysis.

### 4.2.2 Measures

**Attachment styles.** Attachment styles were measured with the Experiences in Close Relationships Questionnaire-Revised (ECR-R; Fraley et al., 2000), a 36-item self-report scale that measures two underlying dimensions of attachment: (a) attachment anxiety (e.g., "I need a lot of reassurance that I am loved by my partner"); and (b) attachment avoidance (e.g., "I try to avoid getting too close to my partner"). Each dimension is measured by 18-items that are rated in a 7-point scale ranging from "Disagree strongly" (score of 1) to "Agree strongly" (score of 7). Participants are asked to answer the scale thinking about how they generally feel in emotionally intimate relationships. Higher scores reflect higher levels of the attachment dimension measured. In the present study, Cronbach's  $\alpha$  for both attachment anxiety and attachment avoidance was .93.

**Means-End Problem-Solving (MEPS) procedure.** The MEPS is a widely used test of social problem solving that measures people's ability to orient themselves towards a goal and conceptualize means of moving towards that goal (Platt & Spivack, 1975). The MEPS requires that participants complete a number of

stories that have the beginning and the end but not the middle part. Using a modified version of the MEPS (Steinhardt, Hawton & Kingsbury, n.d.), the researcher reads aloud five stories and in each one of them the researcher asks the participant to fill in the gap. For example, one of the MEPS stories is: "Harriet loved her boyfriend very much, but they had many arguments. One day he left Harriet. Harriet wanted things to be better. The story ends with everything fine between them. You begin the story with the boyfriend leaving after an argument". If the participant is female the main character (hero) of the story is presented as a female, but if the participant is male the main character is presented as male. Participants are given 60 seconds to say how or what the hero could have done to arrive at the ending of the story.

Participants' responses were audio-recorded, transcribed and then scored using Steinhardt et al. (n.d.) guidelines. According to these guidelines, responses to each MEPS story can be scored on six domains: (a) whether the story was completed; (b) number of actions carried out by the hero of the story; (c) number of actions carried out by other characters in the story; (d) any other step or description provided in the story; (e) total number of statements or means to arrive at the end of the story (reflecting the sum of actions by the hero, other characters and any other steps); (f) likely effectiveness of the response (rated on a 5-point scale: 1=very ineffective to 5=very effective); and (g) degree of activity/passivity of the hero (1=very passive to 5=very active). For each participant,

a total score is computed in each of these dimensions by averaging the ratings across the five stories.

This study focused on total number of means (MEPS relevant means), effectiveness of the response (MEPS efficacy) and the degree of activity/passivity of the hero (MEPS active/passive). Using the guidelines developed by Steinhardt et al. (n.d.), the author scored the MEPS transcripts of all the participants who took part in the study. To achieve high levels of inter-rater reliability, an independent rater was trained in the scoring of the MEPS. In the training phase, the rater independently scored the transcripts of three randomly selected participants (i.e., 15 MEPS stories). Each individual story and the category of response were carefully examined and differences in rating were discussed at length. To examine the interrater reliability the independent rater, blind to self-harm group membership, additionally scored the transcripts of 10 randomly selected participants (i.e., 50 MEPS stories). The interrater reliability was satisfactory for all but the activity/passivity rating. The Pearson product moment correlation coefficients between raters were .96 ( $p < .001$ ) for MEPS relevant means, .70 ( $p = .023$ ) for MEPS efficacy and .38 ( $p = .281$ ) for MEPS active/passive. The MEPS active/passive rating was therefore removed from the analysis.

**Entrapment.** Entrapment was measured with the entrapment scale (Gilbert & Allan, 1998), a 16-item self-report questionnaire that measures people's motivation to escape from situations that can be external (e.g., "I feel trapped by my obligations") or internal

(e.g., "I would like to escape from my thoughts and feelings"). External entrapment is measured by 10-items, whereas internal entrapment is measured by 6-items. Each item consists of a 5-point scale ranging from "Not at all like me" (score of 0) to "Extremely like me" (score of 4). Total entrapment is a global measure of motivation to escape and its score is computed by summing the scores of external and internal entrapment. Higher scores reflect higher levels of entrapment. The internal consistencies were good for external entrapment ( $\alpha = .90$ ), internal entrapment ( $\alpha = .93$ ) and total entrapment ( $\alpha = .94$ ). This study focused on total entrapment as a global indicator of motivation to escape.

**Self-harm.** Self-harm was measured with two key questions from the Child & Adolescent Self-harm in Europe (CASE) study (Madge et al., 2008). These questions were embedded in the computer-based questionnaire, which allowed for automatic skip patterns that presented follow-up self-harm questions only to those participants for whom it was relevant. The first key question was "Have you ever deliberately taken an overdose (e.g., of pills or other medication) or tried to harm yourself in some other way (such as cut yourself)?" Response options were "no", "yes, once" and "yes, more than once". Participants who confirmed this initial question were presented follow-up self-harm questions, including the second key question to determine classification of self-harm. Participants who did not confirm this initial question continued with other items of the computer-based questionnaire.



The second key question to determine classification of self-harm was open-ended and it pertained to the participants' last self-harm episode. The question was: "Describe what you did to yourself on that occasion. Please give as much detail as you can—for example, the name of the drug taken in an overdose". Responses to this question were coded using the manual of coding rules from the CASE study (Hawton, Rodham & Evans, 2001).

This manual defines self-harm as "An act with a non-fatal outcome in which an individual deliberately: (a) initiates behaviour (such as self-cutting, hanging), which they intend to cause self-harm; (b) ingests a substance in excess of the prescribed or generally recognised therapeutic dose; (c) ingests a recreational/illicit drug (which was an act that the person regarded as self-harm); and (e) ingests a non-ingestible substance or object". The CASE manual of coding provides three main categories of self-harm status: (a) no deliberate self-harm; (b) deliberate self-harm; and (c) no deliberate self-harm information given. This latter category is coded when respondents are unable or do not wish to describe their last self-harm episode (e.g., "I didn't overdose, I just hurt myself"). According to the manual, this category assumes that the respondent could have engaged in self-harm in the past. In the present study, only one respondent was coded with the category of "no deliberate self-harm information given"; but this participant was moved to the self-harm category assuming previous self-harm.

### **4.2.3 Procedure**

The study was carried out at the School of Psychology of The University of Nottingham. Participants were recruited through e-mails sent to volunteers for psychological studies and through the online experiment management system of the School of Psychology. The study was advertised as one that investigated life situations, copings skills and mental health. Students interested in participating in the study scheduled an individual appointment with the researcher that took place at a university based laboratory. In the laboratory, the study was described in more detail prior to asking for participants' written informed consent. Informed consent forms were kept separate from participants' responses, which were anonymous and confidential.

In individual sessions, each participant completed first the MEPS (described below) and then a computer-based questionnaire, which included scales of attachment, entrapment and self-harm. The computer software (Test Pilot Version 4) used to design the questionnaire did not allow for random presentation of scales. As a consequence, all participants completed first the attachment scale, followed by the entrapment measure, and then the self-harm items, but other scales were presented in between. To provide privacy and reduce underreporting of sensitive behaviours, each participant was left alone in the lab while they were completing the computer-based questionnaire. Once participants completed the questionnaire they were debriefed and received an inconvenience allowance of £4.

The study was approved by the Ethics Committee of the School of Psychology at The University of Nottingham.

## **4.3 Results**

### **4.3.1 Preliminary Analysis**

Data were examined for missing values, outliers and skewed distributions. Examination of total entrapment revealed that two (2.6%) participants had missing values. These cases were removed from the moderation analysis, resulting in a sample of 74 participants. Scores on total entrapment ranged from 0 to 55, with a mean of 15.88 ( $SD = 13.98$ ). The distribution of total entrapment showed a severe positive skew that neither logistic nor square root transformations improved. As a consequence, total entrapment was dichotomised using a median split, resulting in 35 (46.1%) cases with entrapment (coded as 1) and 39 (51.3%) cases without entrapment (coded as 0).

Exploration of the predictor variables revealed that attachment anxiety had only two cases (2.6%) with missing values, which were replaced with the sample mean. Attachment avoidance had 3 cases (3.9%) with missing values and one outlier with a  $z$  score beyond  $\pm 3$ . This outlier was assigned one unit smaller than the next most extreme score in the distribution (Tabachnick & Fidell, 2007). After changing the score of this outlier, cases with missing values in attachment avoidance were replaced with the sample mean. Exploration of the MEPS data revealed that one case (1.3%) had missing values in story four. These values were replaced with the sample mean of story 4 of the MEPS.

Participants with attachment insecurities, indicated by attachment anxiety and attachment avoidance, were expected to be prone to feel trapped. As Table 4.1 reveals, both attachment anxiety and attachment avoidance were significantly related to total entrapment. Participants with good social problem-solving skills, on the other hand, were expected to be less prone to feeling trapped. In particular, participants who produced more relevant means in the MEPS and whose responses were rated as more effective, were expected to be less likely to feel trapped. Table 4.1 reveals that, in general, participants with good social problem-solving skills were less prone to feel trapped. Specifically, as the number of MEPS relevant means increased, the level of entrapment decreased. Similarly, as the MEPS efficacy rating increased, the level of entrapment decreased. Table 4.1 also sheds light on the relationship between an attachment and social problem-solving. Attachment anxiety was significantly and negatively related to MEPS relevant means and to MEPS efficacy; but attachment avoidance was not. In sum, attachment insecurities and, to a lesser extent, ineffective social problem-solving skills, were related to total entrapment. It remained to be examined how these factors interacted in predicting the sense of being trapped.

**Table 4.1 Correlations between Attachment Styles, MEPS Data and Entrapment**

Measure	1	2	3	4	5
1. Attachment anxiety	–				
2. Attachment avoidance	.28*	–			
3. MEPS relevant means	-.29*	-.15	–		
4. MEPS efficacy	-.24*	-.11	.67***	–	
5. Entrapment total	.55***	.61***	-.30*	-.34*	–
Mean	61.20	50.79	3.99	3.01	
Median	59.50	51.08	3.80	3.00	
(SD)	(20.19)	(16.52)	(1.22)	(0.75)	

Note.  $n = 74$ ; The biserial correlation coefficient was used for entrapment total. MEPS = Means-Ends Problem-Solving.

\* $p < .05$ . \*\*\* $p < .001$ . Two tailed tests.

### 4.3.2 Attachment and Entrapment: Problem-Solving as

#### Moderator

Participants with an insecure attachment were expected to be prone to feel trapped depending on their social problem solving skills. To examine this, two sets of hierarchical logistic regressions were carried out. One set examined whether MEPS relevant means moderated the relationship between attachment and entrapment, whereas another set examined whether MEPS efficacy acted as a moderator of the attachment–entrapment relationship. For both sets of logistic regressions, the first block included attachment anxiety and attachment avoidance simultaneously. The second block, depending on which moderator was tested, included either the MEPS relevant means or the MEPS efficacy. The third block was repeated twice, each time including a different interaction between the dimensions of attachment (anxiety or avoidance) and the MEPS data tested as a moderator. All variables were centred prior to including them in the logistic regression analyses (Jaccard, 2001).

**MEPS relevant means as a moderator.** As the MEPS relevant means increased (reflecting better social problem solving), the relationship between attachment insecurities and entrapment was expected to decrease. Table 4.2 reveals, however, that the MEPS relevant means did not moderate the relationship between attachment and entrapment. In block 1, attachment insecurities were associated with an increased likelihood of reporting feelings of entrapment: both attachment anxiety (OR = 1.05, 95% CI = 1.02 – 1.08) and attachment avoidance (OR = 1.07, 95% CI = 1.03 – 1.12) were significant predictors of entrapment. In block 2, MEPS relevant means was not a significant predictor of entrapment (OR = 0.79, 95% CI = 0.47 – 1.31). Block 3a and block 3b revealed that the interaction between attachment and social problem solving skills was not significant: the interaction of attachment anxiety and MEPS relevant means was not a significant predictor of entrapment (OR = 0.99, 95% CI = 0.96 – 1.02), as well as the interaction of attachment avoidance and MEPS relevant means (OR = 1.00, 95% CI = 0.96 – 1.04). As an additional analysis, in a separate logistic regression block 3 included all possible interactions simultaneously (i.e., attachment anxiety x MEPS relevant means; attachment avoidance x MEPS relevant means; and attachment anxiety x attachment avoidance). This additional logistic regression revealed that none of the interaction terms were significant predictors of entrapment.

**Table 4.2 Logistic Regression Analysis Testing MEPS Relevant Means as Moderator of the Association between Attachment and Entrapment**

Block and variable	b	Wald statistic	Odds ratio	95% confidence interval for odds ratio		$\chi^2$	Nagelkerke $R^2$
				Lower	Upper		
Block 1						$\chi^2(2) = 29.13^{***}$	.43
Attachment anxiety (ANX)	0.05	8.61	<b>1.05</b>	1.02	1.08		
Attachment avoidance (AVO)	0.07	10.67	<b>1.07</b>	1.03	1.12		
Block 2						$\chi^2(1) = 0.87$	.44
MEPS relevant means (MEANS)	-0.24	0.85	0.79	0.47	1.31		
Block 3a						$\chi^2(1) = 0.30$	.45
ANX x MEANS	-0.01	0.30	0.99	0.96	1.02		
Block 3b						$\chi^2(1) = 0.03$	.45
AVO x MEANS	0.00	0.03	1.00	0.96	1.04		

Note.  $n = 74$ ; Bold type indicates statistical significance as determined by 95% confidence interval excluding unity.  
MEPS = Means-Ends Problem Solving.

\*\*\* $p < .001$ .

**MEPS efficacy as a moderator.** As the MEPS efficacy rating increased, the relationship between attachment insecurities and entrapment was expected to decrease. Contrary to expected, Table 4.3 reveals that MEPS efficacy was not a moderator of the attachment–entrapment relationship. Block 1 showed that attachment insecurities were associated with an increased likelihood of reporting feelings of entrapment. In block 2, MEPS efficacy was not a significant predictor of entrapment (OR = 0.49, 95% CI = 0.21 – 1.16). Block 3a and block 3b showed that the interaction terms of attachment and MEPS efficacy were not statistically significant: the interaction between attachment anxiety and MEPS efficacy (OR = 0.97, 95% CI = 0.93 - 1.02) was not significant, as well as the interaction between attachment avoidance and MEPS efficacy (OR = 0.99, 95% CI = 0.92 - 1.05). As before, an additional analysis examined whether in block 3 a significant interaction emerged when including all possible interactions in the model. The

results of this additional analysis revealed that none of the interaction terms were significant.

**Table 4.3 Logistic Regression Analysis Testing MEPS Efficacy as Moderator of the Association between Attachment and Entrapment**

Block and variable	b	Wald statistic	Odds ratio	95% confidence interval for odds ratio		$\chi^2$	Nagelkerke R <sup>2</sup>
				Lower	Upper		
Block 1						$\chi^2(2) = 29.13^{***}$	.43
Attachment anxiety (ANX)	0.05	8.61	<b>1.05</b>	1.02	1.08		
Attachment avoidance (AVO)	0.07	10.67	<b>1.07</b>	1.03	1.12		
Block 2						$\chi^2(1) = 2.81$	.47
MEPS efficacy (EFFIC)	-0.71	2.64	0.49	0.21	1.16		
Block 3a						$\chi^2(1) = 1.34$	.48
ANX x EFFIC	-0.03	1.27	0.97	0.93	1.02		
Block 3b						$\chi^2(1) = 0.19$	.47
AVO x EFFIC	-0.01	0.20	0.99	0.92	1.05		

Note. n = 74; Bold type indicates statistical significance as determined by 95% confidence interval excluding unity. MEPS = Means-Ends Problem Solving.

\*\*\*p < .001.

4.3.3 Prediction of Self-Harm

A second aim of this study was to examine whether self-harm status was predicted by attachment, social problem solving and entrapment. To accomplish this goal, participants with and without self-harm were first compared on the attachment, MEPS and entrapment data; then a logistic regression analysis examined whether factors significantly associated with self-harm status predicted group membership. For these analyses, missing values in total entrapment, mentioned earlier, were replaced with the median because this variable was positively skewed (Katz, 2006).



**Table 4.4 Comparison of Participants with and without Self-Harm**

	No self-harm ( <i>n</i> =60)		Self-harm ( <i>n</i> =16)		Test statistic	<i>p</i>
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>t</i>	
Attachment anxiety	58.48	(19.97)	74.11	(21.33)	2.74	.008
Attachment avoidance	49.92	(15.07)	55.44	(20.78)	1.20	.235
MEPS data						
Relevant means	4.04	(1.25)	3.81	(1.10)	0.67	.503
Effectiveness	3.06	(0.72)	2.79	(0.83)	1.31	.194
					<i>z</i>	
Entrapment total <sup>a</sup>	10.00		21.50		2.12	.034

*Note.* *n* = 76; MEPS = Means-Ends Problem-Solving.

<sup>a</sup>Median.

Sixteen (21.1%) participants reported having engaged in self-harm; whereas 60 (78.9%) participants reported that they did not. Compared with people who have not self-harmed, those who had self-harmed were expected to report higher levels of attachment insecurities and entrapment, as well as poorer social problem-solving skills. Table 4.4 reveals that, in general, the differences between the groups were in the expected directions, but only the differences in attachment anxiety and entrapment reached statistical significance at  $p < .05$ . Compared with participants who had not self-harmed, those who had self-harmed tended to report higher levels of attachment anxiety and entrapment.

When attachment anxiety and entrapment were entered into the logistic regression model to predict self-harm status, neither of them were significant predictors (Table 4.5). Attachment anxiety, however, showed a trend towards significance (OR = 1.03, 95% CI = 1.00 – 1.06,  $b = 0.03$ ,  $p = .060$ ).

**Table 4.5 Logistic Regression Analysis Predicting Self-Harm Status**

Block and variable	b	Wald statistic	Odds ratio	95% confidence interval for odds ratio		$\chi^2$	Nagelkerke $R^2$
				Lower	Upper		
Attachment anxiety (ANX)	0.03	3.54	1.03	1.00	1.06	$\chi^2(2) = 7.49^*$	.15
Entrapment total	0.02	0.55	1.02	0.97	1.06		

Note.  $n = 76$ .

\* $p < .05$ .

**4.4 Discussion**

The study reported in this chapter examined whether attachment styles and problem-solving skills were related to feelings of entrapment. The main finding of this study was that feelings of entrapment were related to attachment insecurities and poor social problem solving skills. This is the first study to investigate the relationship between problem-solving as measured with the MEPS and feelings of entrapment, and it provides evidence to support a link between them. Contrary to expected, however, problem solving did not moderate the relationship between attachment insecurities and feelings of entrapment.

**4.4.1 Attachment, Problem-Solving and Entrapment**

Consistent with the findings of the previous two chapters attachment insecurities were related to feelings of entrapment, further suggesting that attachment styles might be an individual difference that fosters vulnerability to entrapment. Based on attachment theory, this vulnerability could have developed in infancy and influenced by negative interactions with care givers. Based on this finding, it is possible that other individual difference variables can foster vulnerability to entrapment. Perfectionism could

be one such variable, as theory and research suggest that it could play an important role in self-harm (O'Connor, 2007).

The bivariate analysis showed correlations between social problem-solving and entrapment. Both the number of MEPS relevant means and the MEPS efficacy ratings were negatively related to entrapment. This finding replicates past research showing a relationship between perceptions of problem-solving ability and entrapment (Taylor et al., 2010), but further suggests that an objective measure of problem solving, such as the MEPS, is also related to entrapment. Such findings seem to support the view that ineffective problem solving may reduce coping options, thereby contributing to a sense of being trapped (Williams, Barnhofer et al., 2005).

The moderation analysis revealed that attachment insecurities were associated with feelings of entrapment, independently of social problem solving skills. Specifically, the association between attachment anxiety and attachment avoidance with entrapment was not affected by the MEPS data. This finding is somewhat difficult to explain, given that past research suggests that effective problem-solving may protect against psychological distress and suicide ideation (Chang, 2002). One possible explanation for this finding is that a person with attachment insecurities, by definition, engages in ineffective problem-solving; as attachment and problem-solving are believed to be deeply influenced by early family relationships. If this was the case, a measure of attachment would be providing an indirect measure of problem-solving, which could render a

moderation analysis difficult to carry out. However, the bivariate correlations between attachment styles and problem-solving data were moderate; suggesting that other factors apart from attachment could explain variance in problem-solving.

Another possible explanation is that participants, in general, were good problem-solvers since they were drawn from a community sample of students. This could have reduced the probability of finding a significant interaction between problem-solving and attachment. University students might be expected to exhibit relatively functional problem-solving skills compared with a clinical sample where problem-solving could be more impaired. Alternatively the MEPS, although a widely used measure of problem solving, might have provided information about how participants dealt with hypothetical problems, but not with everyday problems which could be more relevant in developing a sense of being trapped. A number of researchers have suggested that the MEPS may have low ecological validity (Reinecke, 2006) and that other methods to measure problem-solving, such as a diary methodology, might be needed to measure how participants deal with problems in everyday life (Anderson, Goddard & Powell, 2009).

#### **4.4.2 Attachment, Entrapment and Self-Harm**

Group comparisons of participants with and without self-harm revealed that those who have engaged in self-harm were more likely to report an attachment anxiety style and to feel trapped. This finding is consistent with past research that has investigated the role of attachment (e.g., de Jong, 1992) and entrapment (e.g.,

Rasmussen et al., 2010) in self-harm. These findings suggest that an insecure attachment, in particular attachment anxiety, may act as vulnerability factor for self-harm and that the sense of entrapment could play an important role in this behaviour. The link between attachment anxiety, entrapment and self-harm is also in line with previous chapters that have found a relationship between these factors and thoughts about suicide and non-suicidal self-injury (NSSI). However, the present study further suggests that an insecure attachment and entrapment could play an important role in self-harm behaviour.

Contrary to expected, the self-harm group did not score significantly lower on the MEPS data as compared with the no self-harm group. As mentioned earlier, it is possible that the link between social problem-solving and self-harm is weaker among community samples—such as university students—than among clinical samples; where problem solving could be expected to be more dysfunctional. Alternatively, it is possible that the self-harm group included people with varying periods of time since the last self-harm episode, which could have resulted in heterogeneity on the levels of problem-solving skills. Problem-solving skills as measured with the MEPS have been found to vary in time and to be influenced by mood changes, suggesting that these skills could be state-dependent (Williams, Barnhofer et al., 2005). Thus, the group of participants closer to a self-harm crisis could have performed poorer in the social problem solving task compared with those who were far in time from their last self-harm episode. Finally, the study

might simply have needed a larger group of self-harm participants to detect significant differences in the scores of social problem solving.

The multivariate analysis revealed that self-harm status was not predicted by attachment anxiety and entrapment, although attachment anxiety showed a trend towards statistical significance. One possible explanation for this finding is that the logistic regression model lacked statistical power to detect significant associations, given the relatively small number of events (i.e., cases with self-harm) per predictors (Babyak, 2004). Research with a larger sample could further investigate the joint contribution of attachment, problem solving and entrapment on self-harm.

#### **4.4.3 Limitations**

The findings of this study are constrained by the relatively small sample size of the self-harm group. On the other hand, the findings of this study are limited in that they may not generalise to clinical populations and to males. The cross-sectional design of the study raises doubts about the direction of the relationship between attachment and entrapment. Although attachment styles are believed to be stable over time, based on the findings of this study it could be argued that a person who experiences a sense of being trapped could develop negative views about their close relationships; which could result in anxious or avoidant styles in relating with others. Another limitation is that psychological distress, such as depression and anxiety, was not controlled for in the analysis. Yet, theorists view entrapment as a critical factor that

precipitates psychological distress and in some cases self-harm (Taylor et al., 2011; Williams, 2001), and it therefore seemed important to examine first what person factors could foster vulnerability to entrapment.

#### **4.4.4 Implications**

The main implication is that assessment of attachment styles can help identify people who could be prone to feel trapped and therefore at risk of engaging in self-harm. In addition, the findings suggest that treatment of feelings of entrapment could potentially reduce risk of engaging in self-harm. Taylor et al. (2011) suggested that psychological treatment aimed at reducing entrapment could focus in promoting positive reappraisals of one's abilities to cope with stressful situations, so as to improve perceptions that there is a way out without self-harm.

#### **4.4.5 Conclusions**

Entrapment has been linked with psychological problems and self-harm, but little is known of what factors may contribute to this dangerous psychological state. The present study examined whether attachment styles and problem solving play a combined role in contributing to entrapment, and whether these factors were associated with self-harm.

Results showed that people with attachment insecurities were prone to feel trapped, independently of their social problem-solving skills. Self-harm, on the other hand, was related to an insecure attachment—as indicated by attachment anxiety—and to entrapment. Yet, in predicting self-harm with a multivariate model,

neither attachment nor entrapment were significant predictors. The role of an insecure attachment in entrapment, and possibly self-harm, seems to be an individual difference that fosters vulnerability; yet other variables such as perfectionism could be implicated as well. The role of social problem-solving skills in entrapment and self-harm, however, was less clear; possibly due to sample characteristics, sample size or the method used to measure problem solving skills—which relied on hypothetical problems rather than on real-life situations. The results of this study do not allow for causal interpretations of the findings and for generalisations beyond university samples and females.

Since problem-solving may play an important role in self-harm, it seems important to further investigate the role of these skills among individuals who could be prone to engage in this behaviour; such as individuals with attachment insecurities and feelings of entrapment. Recent research suggests that the use of diary methods to measure problem-solving might provide insight into the problem-solving processes that occur in real life. This will be examined in the next chapter.



## **5 An Exploration of Real-Life Problem Solving among Young People with Self-Harm**

### **Abstract**

Problem-solving is concerned with problems in the context of everyday life (Anderson et al., 2009); however, assessment of problem-solving in self-harm research is generally based on responses to hypothetical problems or to self-report scales about self-appraisals (Clum & Febraro, 2004), responses that might have low ecological validity. Recent research suggests that the ecological validity of problem-solving could increase by using a diary method to assess problem-solving (Anderson et al., 2011). There is also some evidence that a computerised text analysis of written samples of how people deal with problems may reveal coping strategies (Lee & Cohn, 2010). To date, no study has used a diary approach for the assessment of problem-solving among individuals with self-harm; nor conducted a text analysis of their written solutions to everyday problems. Using a Web-based diary and a computerised text analysis, the study reported in this chapter aimed to provide insight into the real-life problem-solving skills of individuals with self-harm. Furthermore, the study investigated whether real-life problem-solving related to attachment insecurities and feelings of entrapment.

The computerized text analysis revealed that linguistic patterns of participants with and without self-harm were quite similar; use of words reflecting negative and positive emotions was

infrequent, whereas use of words denoting cognitive mechanisms was more common. These linguistics categories were unrelated to attachment insecurities and feelings of entrapment. Future studies of real life problem-solving could benefit by using a clear definition of life problems, and by providing in depth rater training to mark problem-solving skills.

## **5.1 Introduction**

Many studies have shown that individuals with a history of self-harm respond differently to social problem-solving measures compared with individuals without such a history or psychiatric controls. More specifically, individuals with a history of self-harm have been found to exhibit deficits in social problem-solving: they tend to generate fewer solutions to social problems and these solutions tend to be less effective and active (Arie et al., 2008; Kingsbury, Hawton Steinhardt & James, 1999). There is also some evidence that individuals with a history of self-harm tend to perceive problems as a threat rather than as a challenge (Orbach et al., 2007), and to view themselves as poor problem solvers (Grover et al., 2009).

Although a number of measures have been developed to assess problem-solving skills, only a few of these have been used to examine the relationship between these skills and self-harm. D’Zurilla et al. (2004) distinguish between two general types of social problem solving measures: process measures and outcome measures. Process measures often include self-report inventories that assess the abilities, skills and attitudes that allow an individual

to discover effective solutions to everyday problems. Outcome measures are performance tests that assess the ability to apply problem solving skills effectively to specific problems. A number of researchers (Clum & Febraro, 2004; Speckens & Hawton, 2005) have suggested that research on self-harm often relies on one outcome measure, the MEPS (Platt & Spivack, 1975), and two process measures: the Social Problem Solving Inventory—Revised (SPSI-R; D’Zurilla, Nezu & Maydeu-Olivares, 2002) and the Problem Solving Inventory (PSI) which was developed by Heppner and Petersen (1982).

Although frequently used measures of problem-solving skills in self-harm research have strengths, they also have a number of limitations that may pose challenges in the interpretation of results. In their systematic review of social problem-solving and self-harm among young people, Speckens and Hawton (2005) highlighted strengths and limitations of problem-solving measures in self-harm research. According to these authors, although the MEPS might allow standardising problematic situations and reduce unwanted variability associated with real-life stressors, it might also reduce the ecological validity of problem-solving. Speckens and Hawton also indicated that self-report measures, such as the SPSI-R and PSI, might facilitate their administration in large samples, but these measures might be particularly prone to distortion. Thus, it is possible that findings based on these measures reflect what participants think they would do when faced with a problem, but not

what they will do. Furthermore, it is possible that these findings reflect distorted self-appraisals of problem-solving.

### **5.1.1 The Ecological Validity of Problem-Solving**

Research on problem-solving in other populations has examined discrepancies between responses to self-report scales and hypothetical problems on the one hand, and actual problem-solving behaviour on the other. This research suggests that what participants report they would do when faced with problems is not necessarily what they actually do. For example, Shewchuk, Johnson and Elliot (2000) measured social problem-solving skills among university students using the SPSI-R. These researchers then asked participants to take part in a problem-solving task. In this task, participants were presented with a booklet of cards depicting geometric shapes, lines and figures that were arranged according to an underlying principle unknown to the participant. The participant needed to discover the underlying principle by asking questions to the experimenter, who only provided yes or no answers. Shewchuk, et al. found that social problem solving skills as measured with self-report questionnaire were unrelated to performance on the objective problem-solving measure.

In another study conducted with children with behaviour problems and mild intellectual disabilities, real-life social problem-solving was found to be unrelated to responses to hypothetical problems (van Nieuwenhuijzen et al., 2005). In this study, participants were tested on two different sessions. In the first session participants were asked to set up rows of dominoes with the

help of another child. In reality, this situation was manipulated in such a way that the dominoes of the other child were very difficult to set-up, thus preventing the participant from completing the task and winning a prize. The researchers coded the participants' behaviour in a number of problem-solving dimensions. In the second session, participants were presented with videos in which children enacted problematic social situations. Based on different types of solutions enacted by children from the video, participants were asked to select what they judged best for the situation. Van Nieuwenhuijzen et al. found that the categories that participants selected after watching the videos were unrelated to their actual behaviour in the dominoes problematic situation.

### **5.1.2 A Diary Approach to Assess Social Problem-Solving**

The discrepancy between responses to hypothetical problems or self-report scales and actual problem-solving could be reduced by asking participants to report their everyday problems and how they tried to solve them. Anderson et al. (2009) examined whether problem-solving as assessed with typically used measures and with a diary approach differentiated three groups of university students: (a) with depression and anxiety; (b) with anxiety only; and (c) a comparison group. To assess problem solving with typically used measures, Anderson, Goddard and Powell asked participants to complete the MEPS and the SPSI-R. To assess problem-solving with a diary approach, these researchers asked students to record in a diary at least four social problems experienced in a period of two to four weeks.

In Anderson et al. (2009) study, social problems were defined as "situations that present difficulty and where the solution is not immediately obvious". If participants were unsure of what to record in the diary, they were asked to remember the problems presented in the MEPS and to record similar problems. In the diary participants recorded, among other things, what was the problematic situation, what they did to try and solve it and what was the outcome. Solutions to everyday problems were scored in two different ways: first, solutions were marked for degree of effectiveness, based on a 7-point Likkert scale of 0 (not at all effective) to 7 (very effective). Second, solutions were coded as either functional, avoidant or impulsive-careless based on the problem-solving model of D'Zurilla, et al., (2004). The functional style refers to constructive problem-solving where the person applies rational and systematic problem solving skills. The avoidant style refers to a problem-solving pattern characterised by procrastination, dependency and passivity. The impulsive-careless style refers to a dysfunctional problem-solving pattern characterised by attempts to apply problem-solving patterns, but attempts that tend to be narrow, careless and incomplete.

Anderson et al. (2009) found moderate correlations between markers of problem-solving effectiveness as assessed with the diary and typically used measures of problem-solving, including the MEPS. Perhaps more interestingly, markers of effectiveness as assessed with the diary method differentiated between the group with both depression and anxiety and the comparison group; whereas these

groups generated similar number of relevant means, and levels of effectiveness, as assessed with the MEPS. These findings suggest that a diary approach for problem-solving might be measuring related, but not identical, social problem-solving processes tapped by typically used measures.

In a subsequent study, Anderson et al. (2011) further examined the role that real-life social problem solving might play in depression. Specifically, these researchers examined whether social problem-solving as assessed with a diary approach predicted depression above and beyond baseline levels of depression and typically used measures of problem-solving. Similar to the study described above, these researchers asked university students ( $n = 55$ ) to complete the SPSI-R and the MEPS, as well as a measure of depression. About three months later, participants returned to the laboratory to complete the depression scale a second time. In between these two assessment points, participants recorded a diary form as described earlier. As before, solutions to everyday problems were marked for effectiveness and content analysed for patterns of problem-solving styles (i.e., functional, avoidant and impulsive-careless). Hierarchical regression analysis showed that markers of effectiveness of problem-solving as measured with the diary predicted depression after adjusting for baseline levels of depression, the MEPS and SPSI-R total score. Interestingly, in this study markers of effectiveness as measured with the diary approach were unrelated to markers of effectiveness as assessed by the MEPS; further suggesting that the skills used in everyday social

problem-solving might be different to those skills involved in the generation of solutions to hypothetical problems.

The diary approach to measure problem solving developed by Anderson et al. (2009, 2011) represents a reliable starting point to examine problem-solving as it occurs in everyday life. Yet, the diary method as utilised by Anderson and collaborators might have some limitations. First, and as highlighted by these researchers, since responses to the diaries were not time- and date-stamped it was not possible to examine participants' compliance with the instructions of the study. Computer-based diaries may allow researchers to examine the degree to which participants comply with instructions since these diaries can time- and date-stamp response submissions. On the other hand, Anderson et al. asked students to record their problems, but there was no assessment of what type of problem it was. For example, whereas a participant could have reported having difficulties with an academic examination, another could have reported the loss of a family member. The nature of the problem could influence the problem-solving strategy that is reported in a diary, and it therefore seems important to assess what type of difficulty the participant experienced.

Asking participants to write about their real-life problems and how they tried to solve them may allow analysing the data in a different way to further explore problem-solving as it occurs in daily life. Text analysis research suggests that the words that people use to write about stressful experiences reveal important aspects of their coping strategies (Lee & Cohn, 2010). Maladaptive coping



strategies have been found to be associated with self-mutilation (Andover, Pepper & Gibb, 2007) and with dysfunctional problem-solving (D’Zurilla & Chang, 1995). As a consequence, it is possible that a text analysis of participants’ solutions to everyday problems reveals problem-solving skills of individual respondents.

### **5.1.3 Text Analysis: Writing about Stressful Situations**

A widely use computer programme to conduct text analysis is Pennebaker’s Linguistic Inquiry and Word Count (LIWC). The LIWC has two main components: the processing component and a dictionary component (Tausczik & Pennebaker, 2010). The processing component opens text files and goes through them word by word. The dictionary component compares each word in a given text file with a dictionary, which refers to the collection of words that define a particular category. LIWC calculates the percentage of words in a text that are assigned to each category of words.

A recent study suggests that a text analysis and the use of the LIWC could potentially reveal important aspects of problem-solving. Lee and Cohn (2010) investigated whether words that university students used in writing about a stressful event were related to coping styles. To do so, these researchers asked university students ( $n = 153$ ) to complete self-report measures of coping styles and to write about how they dealt with a stressful event of college life. Using LIWC, these researchers calculated the percentage of words used in the writing samples that could reflect coping styles, specifically, words that denoted negative emotions, causation and insight. Use of words denoting negative emotions

(e.g., “angry”) was negatively related to problem-focused coping as derived from the self-report questionnaires. In addition, participants who used more insight-related words (e.g., “realise”) obtained lower scores on measures of emotion-focused coping. Based on the finding of Lee and Cohn, it is possible that use of words denoting emotions, in particular, negative emotions, might reveal dysfunctional problem-solving. Furthermore, it is possible that use of words denoting insight—which forms a part of a broader word category in LIWC named cognitive mechanisms—reveals adaptive problem-solving.

Additional research suggests that participants who use words denoting negative emotions (e.g., “angry”) in writing about stressful situations report poorer health-related outcomes, whereas participants who used words denoting cognitive mechanisms (e.g., “because”) experience improvements in their interpersonal relationships (Ullrich & Lutgendorf, 2002). Taken together, use of words in texts describing solutions to everyday problems, specifically words denoting emotions and cognitive mechanisms, might provide insight into the problem-solving ability of individual respondents.

In sum, although social problem-solving is perhaps one of the most thoroughly researched psychological factors associated with self-harm (Ellis & Rutherford, 2008), the ecological validity of problem-solving remains questionable because of the methods typically used for its assessment (Anderson et al., 2009). As a consequence, it is unclear whether these skills reflect how people at

risk of self-harm deal with problems in their daily lives. Moreover, it is unclear how problem-solving skills used in daily life relate to important psychological factors associated with self-harm, such as attachment insecurities and feelings of entrapment.

Recent research suggests that ecologically valid assessments of problem-solving could be obtained by examining solutions to everyday problems as recorded with a diary method. Specifically, the work of Anderson et al. (2009, 2011) described above suggests that marking these real-life solutions on degree of effectiveness and problem-solving style (i.e., functional, avoidant or impulsive) reveals aspects of problem-solving that typically used measures, such as the MEPS, might be unable to uncover. On the other hand, based on text analysis research it is possible that participants' written solutions to real-life problems reflect important aspects of problem-solving. Taken together, past research suggests that an ecologically valid assessment of problem-solving could be obtained by using a diary approach to record everyday difficulties and attempts to solve them, and by examining these solutions in two important but different ways: by marking real-life solutions on a number of problem-solving dimensions, and by conducting a computer-based text analysis on these solutions.

Although no previous study seems to have conducted a text analysis of participants' self-reported solutions to everyday difficulties, it is possible that use of words in this context relate to self-harm, feelings of entrapment and attachment insecurities. Rude, Gortner and Pennebaker (2004) investigated linguistic

patterns of depressed and formerly depressed university students. These researchers asked students to write about their thoughts and feelings related to starting college, and then they analysed these texts using the LIWC programme. Rude et al. found that relative to non-depressed students, those who were depressed used significantly more negative emotion words and tended to use fewer positive emotion words. Since depression has been found to be associated with self-harm (Skegg, 2005) and with feelings of entrapment (Gilbert & Allan, 1998), it is possible that individuals with a history of self-harm and who feel trapped use more negative emotion words and less positive emotions words when writing about their solutions to everyday problems.

Regarding the relationship between word use in self-reported solutions to daily problems and attachment insecurities, attachment theory and research may provide a framework to predict how they might be related. Attachment research suggests that anxiously attached individuals tend to exacerbate negative emotions in response to stressful situations (Mikulincer & Shaver, 2008). It is therefore possible that that anxiously attached individuals write solutions that contain the highest percentage of words reflecting negative emotions, and the lowest percentage of words denoting positive emotions. In contrast, since attachment research suggests that attachment-avoidant individuals tend to inhibit or suppress negative emotions in times of stress (Mikulincer & Shaver), writing samples as produced by these individuals might not reflect negative or positive emotions.

#### **5.1.4 The Present Study**

The first goal of the present study was to obtain an ecologically valid assessment of problem-solving among individuals with and without self-harm. The second goal of the study was to examine how components of real-life social problem-solving relate to attachment insecurities and feelings of entrapment. The previous chapter explored the possibility that effective problem-solving as measured with the MEPS could protect insecurely attached individuals from feeling trapped. The study reported in the present chapter represents an attempt to further explore this possibility by examining problem-solving as it may occur in real life.

To accomplish these goals, university students with and without self-harm completed a Web-based diary of their everyday problems and their attempts to solve them. These solutions were marked on a number of problem solving dimensions and analysed using Pennebaker's LIWC. Students also completed the MEPS and measures of self-harm, attachment and feelings of entrapment.

Regarding the first goal of the study, relative to individuals without a history of self-harm those with a self-harm history were expected to possess dysfunctional problem-solving skills as indicated by ratings of problem-solving dimensions and by a text analysis conducted by the LIWC. Regarding ratings of problem-solving, compared with individuals without self-harm, those with a self-harm history were expected to produce less effective, more passive and maladaptive (i.e., avoidant and impulsive) solutions to everyday problems. In relation to the LIWC analysis, compared with

individuals without self-harm, those with a self-harm history were expected to write solutions that contained higher percentages of words denoting negative emotions, and lower percentages of words denoting positive emotions.

With regard the second goal of the study, attachment insecurities and feelings of entrapment were expected to relate to dysfunctional problem-solving skills as indicated by ratings of problem-solving dimensions and by a text analysis conducted with the LIWC. In relation to the ratings of problem-solving, attachment insecurities (anxiety and avoidance) and feelings of entrapment were expected to relate to ineffective, passive and maladaptive (i.e., avoidant and impulsive) solutions to everyday difficulties. Regarding the LIWC analysis, attachment anxiety was expected to relate to more use of words denoting negative emotions and less use of words denoting positive emotions; whereas attachment avoidance was expected to be unrelated to use of words denoting emotions. Feelings of entrapment, on the other hand, were expected to relate to more use of words reflecting negative emotions and less use of words denoting positive emotions.

No hypotheses were formulated regarding the relationship between use of words reflecting cognitive mechanisms and self-harm, attachment insecurities and feelings of entrapment.

## **5.2 Methods**

### **5.2.1 Participants**

To recruit participants for this study, university students who participated in the study in Chapter 4 were invited to take part in a

related research about life experiences. Participants from the previous study were aware that they would be invited to take part in a related investigation until a predetermined number of participants was met. As part of the previous study, they had completed the MEPS and an anonymous computer-based questionnaire of attachment, entrapment and self-harm (described below). Recruitment ended until a minimum of 11 participants with a history of self-harm, and 11 without such a history, completed the diary study reported in this chapter. Sample size was calculated using G-Power, assuming a large effect size based on the study of Anderson et al. (2009), in which problem-solving skills were measured using a diary method. Alpha was set at .05 and power at .80. In total, 33 students from the University of Nottingham (18 – 32 years,  $M = 21.2$ ,  $SD = 2.5$ ) participated in the present study. Of the total sample, 26 (78.8%) were female and 12 (36.4%) reported a history of self-harm.

### **5.2.2 Procedure**

After completing the study reported in Chapter 4, participants were invited to take part in a related study that was designed to examine people's experiences with life situations. Participants interested in taking part in the study scheduled a face-to-face training session with the experimenter to learn how to access and navigate the Web-based diary. After providing informed consent, participants were asked to complete one diary at the end of each day so that responses reflected the entirety of what they had experienced that day. They were asked to do so for the next seven

days, since this 7-day period falls in between the recommended time for collecting sufficient data in diary studies while reducing participants' burden (Reis & Gable, 2000). To increase adherence, participants were provided with a small card that included the Web-address for the diary and small printed boxes to tick which corresponded to the seven diary entries requested. Additionally, during the 7-day period participants received an e-mail (Dillman et al., 2009) in the mornings and a short text message (Bosnjak et al., 2008) late in the afternoon; the e-mail and text message included a reminder and the Web-address for the diary.

Participants received an inconvenience allowance of £10 for taking part in the study. This inconvenience allowance was given at a follow-up meeting with the researcher. Furthermore, since providing financial or other incentives may increase motivation to participate in diary studies (Ferguson, 2005), participants who completed all seven days of the Web-based diary entered a lottery to win one portable music player or a prepaid gift card—each worth £45.

The study was approved by the Ethics Committee of the School of Psychology at the University of Nottingham.

### **5.2.3 Measures**

**Problem-Solving Diary Form.** Participants were asked to record in a Web-based diary difficult situations experienced during the day and ways of dealing with them. The diary consisted of two main parts. The purpose of the first section was to assist participants in remembering the situations experienced during the



day. To do so, the first section included an adaptation of the Day Reconstruction Method (DRM; Kahneman, Krueger, Schkade, Schwarz and Stone, 2004), which was originally designed to provide an accurate picture of the experiences that occur in a given day. The DRM asked participants to reconstruct their day by viewing it as continuous series of scenes or episodes in a film. They were asked to remember episodes, from the morning till the evening, and to type a few words that could help them recall what was going on. Participants were encouraged to complete this first section of the diary, but they were informed that it was only a tool to help them remember their day and that responses to it would not be recorded.

The purpose of the second section was to examine problem-solving as it occurs in daily life. To do so, the second section included items about difficult situations experienced during the day and how participants tried to solve them. Difficult situations were defined as "situations that required a solution or decision, but where the solution or decision was not immediately apparent or available". At the beginning of this section, participants were presented with examples of everyday difficulties faced by young people to help them identify what it was meant by difficult situations. Examples included "Having an argument with a friend, partner or family member", "Being unable to understand an important part of an exam or a lecture", or "Feeling shy in social situations" (Artistico, Cervone & Pezzuti, 2003). Next, participants were presented the question: "How many difficult situations did you experience today?".

Following, participants were presented with two key items to examine problem-solving.

The first key item asked about the characteristics of the difficult situation experienced during the day:

Now, we would like to learn in more detail about the characteristics of a difficult situation that was experienced today. Remember that by difficult situation we mean a situation that required a solution or decision, but where the solution or decision was not immediately apparent or available. If today you experienced more than one difficult situation, please describe the most important for you. If today you did not experience a difficult situation, please describe any situation on this day that required a solution or decision.

What was the situation? Please give as much detail as you can.

The second key item asked about the solution for the difficult situation, and it did so by providing the following instructions:

Now we would like to know how you are dealing, or how you dealt, with the difficult situation that you described. If today you did not experience a difficult situation, please answer this and the rest of the questions based on the situation that you described previously. Your responses are very important.

How you are dealing, or how you dealt, with the situation? Please give as much detail as you can about all your thoughts, words or actions aimed at changing the situation or the feelings produced by it.

The Web-based diary included other items that were unrelated to the purposes of the present study. To increase positive affect after completing the diary form, the last Web-page of the diary presented a list of howlers written by children. Research suggests that howlers written by children can boost positive affect in Web-based studies (Göritz, 2007).

As mentioned earlier, responses to these key items were marked by raters in a number of problem-solving dimensions. Additionally, responses were analysed with Pennebaker's LIWC.

*Assessment of problem-solving dimensions.* To assess problem-solving based on the responses to the two key items mentioned above, for each diary entry the description of the difficult situation and its corresponding solution were printed into a single page without reference to the respondent's gender, age or self-harm status. This page also included a grid that was developed to record problem-solving scores. The solution reported by the respondent was scored on three problem-solving dimensions: activity/passivity, efficacy and problem-solving style. On the other hand, the problem reported by the respondent was coded to determine type of problem.

The activity/passivity and efficacy dimensions were rated using an adaptation of the guidelines that Steinhardt et al. (n.d.)

developed for the assessment of the MEPS. The activity/passivity dimension was designed to measure the respondent's degree of activity in solving (or trying to solve) the problem. This dimension was rated using a Likkert type scale ranging from 1 (very passive) to 5 (very active). The efficacy dimension was designed to measure the extent to which the solution reported by the respondent was likely to solve the problem. The efficacy dimension was rated with a Likkert type scale ranging from 1 (very ineffective) to 5 (very effective). Problem-solving style was coded based on Anderson et al. (2009, 2011) studies, in which respondents' solutions were coded as either functional, avoidant or impulsive-careless.

The description of the problem faced during the day was coded using the subscales of the Revised University Student Hassle Scale (RUSHS; Pett & Johnson, 2005), which aim is to identify everyday irritants among university students. The RUSHS consists of 15 categories of difficulties, which are: time pressure, financial constraints, race/ethnicity, gender, friendships, traffic, religion, safety, employment, physical appearance and parental expectations. Four additional categories were added for the purposes of the present study, specifically: difficulties with mental or physical health, romantic relationships, family and housing.

The author rated all the diary entries using a scoring guideline that was developed for the present study. During this scoring phase the guideline was updated to account for issues that emerged from the data. For example, how to rate responses where multiple solutions and problems were reported? How to rate brief solutions

that seem neither active nor passive, and neither effective nor ineffective? What to do with responses that describe problems of other persons, but not of the respondent? In addressing these questions, the guideline was updated with additional examples and advice on how to score difficult responses. In addition, the coding of “not enough information given” was added to account for responses where the solutions reported did not allow for marking problem-solving dimensions (e.g., “Everything went well throughout the day”).

To examine the reliability of the author’s ratings, two independent raters at the psychology postgraduate level were trained in the scoring of diary entries using the guideline mentioned above. To train the raters, five randomly selected diary entries were independently scored by each rater. These diary entries were examined and differences in ratings between the author and each independent rater were carefully discussed. After this training phase, 55 randomly selected diary entries (representing 25% of the 220 diary entries available for analysis) were independently scored by the trained raters to determine inter-rater reliability (described in Results section).

*Text analysis of solutions to everyday difficulties.* To obtain a picture of the linguistic patterns in the solutions to everyday difficulties, each solution was analysed using Pennebaker's LIWC computer programme. The LIWC calculated the percentage of words used in each diary entry that were assigned to three word categories

contained within LIWC dictionary, specifically, negative emotions, positive emotions and cognitive mechanisms.

**Self-harm.** Self-harm was measured with two key questions from the Child & Adolescent Self-harm in Europe (CASE) study (Madge et al., 2008). The first question was "Have you ever deliberately taken an overdose (e.g., of pills or other medication) or tried to harm yourself in some other way (such as cut yourself)?". Response options were "no", "yes, once" and "yes, more than once". The second key question to determine classification of self-harm was open-ended and it examine the participants' last self-harm episode. The question was: "Describe what you did to yourself on that occasion. Please give as much detail as you can—for example, the name of the drug taken in an overdose". Responses to this question were coded using the manual of coding rules from the CASE study (Hawton et al., 2001).

**Attachment styles.** Attachment styles were measured with the Experiences in Close Relationships Questionnaire–Revised (ECR–R; Fraley et al., 2000), a 36-item self-report scale that measures attachment-related anxiety (e.g., "I need a lot of reassurance that I am loved by my partner") and attachment related avoidance (e.g., "I try to avoid getting too close to my partner"). Both dimensions of attachment styles are measured by 18-items that are rated in a 7-point scale ranging from "Disagree strongly" (score of 1) to "Agree strongly" (score of 7). Higher scores reflect higher levels of the attachment dimension measured. In the present study Cronbach's  $\alpha$  for attachment anxiety was .90, and .94 for attachment avoidance.

**Entrapment.** Entrapment was measured with the entrapment scale developed by Gilbert and Allan (1998). This is a 16-item self-report scale that measures participants' motivation to escape from external situations (e.g., "I feel trapped by my obligations") and internal situations (e.g., "I would like to escape from my thoughts and feelings"). External entrapment is measured by 10-items, whereas internal entrapment is measured by 6-items. Each item consists of a 5-point scale ranging from "Not at all like me" (score of 0) to "Extremely like me" (score of 4). Total entrapment is computed by summing the scores of external and internal entrapment. Higher scores reflect higher levels of entrapment. In the present study, internal consistencies were good for external entrapment ( $\alpha = .92$ ), internal entrapment ( $\alpha = .96$ ) and total entrapment ( $\alpha = .96$ ). The present study focused on total entrapment as a global indicator of motivation to escape.

**Means-End Problem-Solving (MEPS) procedure.** The MEPS is a well-established measure of problem-solving that assesses people's ability to orient themselves towards a goal and to formulate means of reaching that goal (Platt & Spivack, 1975). Using a modified version of the MEPS (Steinhardt et al., n.d.), the experimenter reads aloud five stories that have a beginning and an end, but not the middle part. The participant is given 60 seconds to fill out this gap by stating how the main character of the story arrived at the end of it.

Participants' responses were audio-recorded, transcribed and scored using Steinhardt et al. (n.d.) guidelines. The present study

focused on total number of means (MEPS relevant means), their effectiveness (MEPS efficacy) and degree of activity or passivity (MEPS active/passive). The inter-rater reliability was satisfactory for all but the activity/passivity rating and therefore the latter was removed from the analysis (see previous chapter for description of inter-rater reliability, since participants in the present study represent a subsample of participants who took part in the study reported in Chapter 4).

## **5.3 Results**

### **5.3.1 Preliminary Analysis**

Of the 33 participants, 30 (90.9%) were fully compliant in that they completed the seven diary entries requested. In total there were 228 diary entries ( $M = 6.9$  per person,  $SD = 0.6$ ; range 4 – 8). The Web-based diary allowed to time- and date-stamp diary entries in order to examine compliance with instructions. Examination of this information revealed that mean time between diary completion ranged between 22.2 – 28.4 hrs across the 7-day period, suggesting that participants were compliant in completing the diary when instructed. An arbitrary cut-off point of 8 hours since the last diary submission was established to identify diary entries that could have reflected unreliable data. With this 8 hour cut-off point, seven (3.1%) out of the total number of diary entries were considered as unreliable and therefore removed from the analysis. Examination of missing values revealed that six (2.6%) diary entries had missing values in the item that asked for the description of the problem or the item that asked for the description of the solution,



and only one diary entry (0.4%) had missing values in both items. Since for each diary entry the description of the problem was assessed independently from the description of the solution, only this latter entry with missing values in both the description and solution of the problem was removed from the analysis. This resulted in a total of 220 diary entries ( $M = 6.7$  per person,  $SD = 0.9$ ; range 3–7).

The dairy form included the question “How many difficult situations did you experience today?”. Examination of responses to this question revealed that on average participants reported 1.4 problems during the day ( $SD = 1.2$ ; range 0 – 7). Of the 220 diary entries mentioned above, in 93 (42.5%) entries participants reported experiencing only one problem, followed by 54 (24.7%) entries where two problems were reported, 41 (18.7%) where zero problems were reported and 31 (14.2%) entries accounting for the rest of the number of problems. Only one diary entry had a missing value on the number of problems experienced during the day.

The next results are presented in two parts. The first part presents results of the inter-rater reliability analysis of the ratings of efficacy, activity/passivity and problem-solving style. This first section also presents results of the inter-rater reliability of the coding of the type of problem experienced by respondents. The second section presents the results of the text analysis as conducted with the LIWC programme.

### 5.3.2 Inter-Rater Reliability of Problem-Solving Dimensions

Table 5.1 presents descriptive data on the ratings of the assessors on efficacy, active/passive and problem-solving style. These data are based on 55 randomly selected diary entries (representing 25% of the 220 diary entries available for analysis) that were rated by two independent raters and the author. The mean rating on efficacy ranged between 3.2 to 3.4, indicating that on average assessors rated the solution strategies as adequately effective. The mean rating on active/passive ranged between 2.9 to 3.9, indicating that on average assessors rated the solution strategies as equally active and passive or as moderately active. Spearman's *Rho* correlation coefficient examined the inter-rater reliability on the efficacy and active/passive because these variables showed skewed distributions. Spearman's correlation coefficients between individual assessors varied between .47 to .63 for the efficacy rating, and between .46 to .63 for the active/passive rating (all  $ps < .01$ ). These results indicated that inter-rater reliability on efficacy and active/passive did not reach satisfactory levels.

**Table 5.1 Descriptive Data on Raters Marking of Efficacy, Active/Passive and Problem-Solving Style**

Variable	Rater 1 <sup>a</sup> ( <i>n</i> = 50)	Rater 2 <sup>a</sup> ( <i>n</i> = 52)	Rater 3 <sup>a</sup> ( <i>n</i> = 52)
<b>Efficacy</b>			
Mean	3.3	3.2	3.4
SD	1.1	1.3	1.7
Median	3.0	3.0	4.0
Range	1–5	1–5	1–5
<b>Active/passive</b>			
Mean	3.9	3.8	2.9
SD	1.0	1.3	1.5
Median	4.0	4.0	3.0
Range	2–5	1–5	1–5
<b>Problem-solving style</b>			
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Functional	36 (72.0)	35 (67.3)	30 (57.7)
Avoidant	7 (14.0)	4 (7.7)	19 (36.5)
Impulsive	7 (14.0)	13 (25.0)	3 (5.8)

<sup>a</sup>Number of entries vary due to missing values and differences between raters in coding responses with the category of "not enough information given".

Table 5.1 also shows descriptive data on the coding of problem-solving style. The most commonly coded style among raters was the functional style, accounting for 57.7% to 72% of the solution strategies coded. As problem-solving style was a categorical variable, Cohen's kappa examined inter-rater agreement on this variable. Inter-rater agreement for problem-solving style was low, as revealed by kappa values between raters ranging from .22 to .29.

Examination of raters' coding of type of problem revealed that the most commonly coded difficulty was time pressure (49%, rater 1; 38.9%, rater 2; 44.4%, rater 3), friendships (15.7%, rater 1; 14.8%, rater 2; 11.1%, rater 3) and romantic relationships (11.8%,

rater 1; 13.0%, rater 2; 14.8%, rater 3). An exception was employment difficulties, which accounted for 18.5% of the diary entries that were coded by one of the raters. The rest of the categories accounted from 1.9% to 11.1% between raters. Prior to examining the kappa values for agreement between raters on type of problem, and based on these percentages, time pressure was retained as a single category, friendships and romantic relationships were collapsed to form a new category (labelled "interpersonal difficulties"), and the rest of the categories were collapsed to create a category of "other type of difficulty". With these new categories, kappa values indicated poor agreement between individual raters, as these values varied between .40, .52 and .69.

Since inter-rater reliability was poor for the problem solving dimensions described above, these dimensions were not used to examine how they relate to self-harm, attachment insecurities and feelings of entrapment.

### **5.3.3 Text Analysis of Solutions to Everyday Difficulties**

Before describing the results of the text analysis conducted with LIWC, this section first explains the procedure followed to obtain the percentage of words used in each linguistic category per participant and across diary entries. As mentioned above, for each diary entry participants reported what they did to try to solve a difficult situation experienced during the day. Each of these solutions were analysed separately by LIWC to obtain the total number of words used to describe the solution. In addition, for each solution LIWC calculated the percentage of words that reflected

negative emotions, positive emotions and cognitive mechanisms. To obtain a single percentage for each participant on each of these word categories, the percentages were averaged across the number of diary entries submitted. For example, for a participant who submitted four diary entries, the mean percentage on each LIWC category was obtained by averaging across these four entries. As a consequence, for each participant a value represented the percentage of words used in a given linguistic category across the diaries that the respondent completed.

The first goal of this study was to obtain an ecologically valid assessment of problem-solving among individuals with and without self-harm. A text analysis of participants' solutions to everyday problems was assumed to provide insight into problem-solving as it occurs in real-life, and to reveal linguistic patterns that would differentiate between individuals with and without self-harm. As a preliminary analysis, the self-harm and no self-harm group were compared in total number of words used in describing solutions to everyday problems. On average, participants with a history of self-harm used slightly more words to describe their solutions to everyday problems ( $M = 64.5$ ;  $SD = 45.8$ ) than participants without a history of self-harm ( $M = 56.8$ ;  $SD = 28.7$ ), but this difference did not reach significance at  $p < .05$ . Compared with participants without self-harm, participants with self-harm were expected to write solutions to everyday problems that contained more words denoting negative emotions and less words denoting positive emotions. Table 5.2 shows that the self-harm and no self-harm

group did not differ significantly between each other in the use of words denoting negative emotions, positive emotions and cognitive mechanisms. For both the self-harm and no self-harm groups, use of words denoting negative emotions accounted for almost 2% out of the total number of words used to describe solutions to everyday problems, whereas positive emotions accounted for less than 4%. Use of words reflecting cognitive mechanisms accounted for almost 20%. These findings suggest that in the context of writing solutions to everyday difficulties, the linguistic patterns of participants with and without self-harm were quite similar.

**Table 5.2 Group Comparisons on Linguistic Dimensions, MEPS Scores and Attachment and Entrapment Measures**

	No self-harm ( <i>n</i> = 21)		Self-harm ( <i>n</i> = 12)		<i>t</i>	<i>p</i>
	<i>M</i>	(SD)	<i>M</i>	(SD)		
Linguistic dimensions						
Negative emotion	2.07	(1.34)	1.95	(1.53)	0.23	.822
Positive emotion	3.49	(1.84)	3.89	(2.14)	0.56	.578
Cognitive mechanisms	19.78	(3.25)	19.79	(2.96)	0.01	.995
MEPS relevant means	4.48	(1.48)	3.93	(1.13)	1.10	.279
MEPS efficacy	3.28	(0.74)	2.78	(0.83)	1.76	.088
Attachment anxiety	55.95	(16.40)	70.01	(16.65)	2.35*	.025
Attachment avoidance	48.22	(15.72)	62.08	(24.77)	1.97	.057
Total entrapment <sup>a</sup>	0.93	(0.44)	1.26	(0.41)	2.16*	.039

*Note.* Linguistic dimensions are shown as mean percentage of words in a given linguistic category out of the total number of words used in the description of solutions. MEPS = Means-Ends Problem-Solving.

<sup>a</sup>Scores on this scale were transformed to reduce skew.

\**p* < .05.

An additional analysis examined whether linguistic patterns in writing about the *problem*, rather than the solution, would distinguish between the self-harm and no self-harm group. This latter analysis was based on the assumption that how respondents

wrote about the difficulties experienced during the day would reveal tendencies in appraising problems. Whereas use of words denoting negative emotions (e.g., "afraid") to describe everyday problems could reveal a negative problem appraisal, use of words denoting positive emotions (e.g., "excited") and cognitive mechanisms (e.g., "reasoned") could reflect a more positive and rational problem appraisal. This additional analysis revealed that in the context of writing about difficulties experienced during the day, participants with and without self-harm did not differ significantly between each other in use of words denoting negative emotions,  $t(31) = 1.02$ , positive emotions,  $t(31) = 0.47$ , and cognitive mechanisms  $t(31) = 0.02$ , all  $p$  values  $> .05$ .

Table 5.2 also presents group comparisons on the MEPS data and scores on the attachment and entrapment measures. The single missing value in attachment anxiety and the two missing values in attachment avoidance were replaced with their corresponding sample mean. In addition, since the distribution of total entrapment showed a severe positive skew it was logarithmically transformed to reduce skew. Compared with participants without self-harm, participants with self-harm reported significantly higher levels of attachment anxiety and feelings of entrapment. There was a trend towards a significant difference between the self-harm and no self-harm group on problem-solving as measured with the MEPS; specifically, participants with a history of self-harm tended to report less effective solutions in solving problematic situations than participants without self-harm.

The second goal of this study was to examine whether real-life problem solving as assessed with a text analysis correlated with attachment insecurities and feelings of entrapment. Table 5.3 shows intercorrelations between linguistic dimensions and attachment and entrapment measures. Attachment insecurities and feelings of entrapment were unrelated to the frequency of using words reflecting negative emotions, positive emotions and cognitive mechanisms. Moreover, problem-solving scores on MEPS relevant means and MEPS efficacy were unrelated to use of words denoting negative emotions, positive emotions and cognitive mechanisms.

**Table 5.3 Intercorrelations among MEPS Scores, Attachment, Entrapment and Linguistic Dimensions**

Variable	<i>M</i>	<i>SD</i>	Linguistic dimensions		
			Negative emotion	Positive emotion	Cognitive mechanisms
MEPS relevant means	4.28	1.37	-.11	-.31	.00
MEPS efficacy	3.10	0.80	-.08	-.15	.02
Attachment anxiety	61.06	17.62	.18	.10	-.05
Attachment avoidance	53.26	20.28	.13	-.17	.02
Total entrapment <sup>a</sup>	1.05	0.45	.11	-.20	.01

*Note.* MEPS = Means-Ends Problem-Solving.

<sup>a</sup>Scores on this scale were transformed to reduce skew.

As before, an additional analysis examined whether linguistic patterns in describing *problems* rather than solutions would correlate with measures of attachment, entrapment and the MEPS data. This additional analysis revealed that attachment insecurities were unrelated to use of words denoting negative emotions, positive emotions, and cognitive mechanisms in the texts that described the problem faced during the day. A similar pattern of results were



found for feelings of entrapment. Moreover, problem-solving scores on the MEPS were unrelated to use of words denoting negative emotions, positive emotions and cognitive mechanisms in description of everyday difficulties ( $r$ 's ranged between  $-.28$  to  $.18$ ; all  $p$  values  $> .05$ ).

## **5.4 Discussion**

The study reported in this chapter represents an attempt to assess social problem-solving as it occurs in daily life. This is the first study to use a Web-based diary to record everyday difficulties and solution strategies among individuals with and without self-harm. Moreover, this is the first study to examine these real-life solutions using Pennebaker's LIWC programme. The analysis carried out with LIWC yielded two main findings: first, on average participants used relatively few words to describe their solutions to everyday difficulties; second, use of words denoting negative emotions and positive emotions was relatively low across diary entries, but use of words reflecting cognitive mechanisms was more common.

### **5.4.1 Solutions to Everyday Difficulties: Linguistic Patterns**

Based on past research suggesting that a text analysis could provide insight into individuals' coping strategies (Lee & Cohn, 2010), the present study examined linguistic patterns of individuals with and without self-harm in the context of writing about everyday difficulties. The study also examined how these patterns related to psychological factors that have been found to increase the risk of

self-harm, specifically, attachment insecurities and feelings of entrapment.

LIWC text analysis revealed that, in the context of writing solutions to everyday difficulties, participants with and without self-harm exhibited similar linguistic patterns. Participants with and without self-harm used relatively few words to describe solutions to everyday difficulties. Of the words used, those that denoted negative emotions and positive emotions were used relatively infrequently, whereas use of words denoting cognitive mechanisms was somewhat more common. Use of words in these linguistic categories was unrelated to measures of attachment insecurities and feelings of entrapment, and to the well established measure of problem solving, the MEPS.

This is the first study to use a computerised text analysis to examine responses to everyday difficulties among participants with and without self-harm. Text analysis research suggests that use of words denoting negative emotions correlate with ineffective coping strategies (Lee & Cohn, 2010), and use of words reflecting cognitive mechanisms correlate with positive outcomes (Ullrich & Lutgendorf, 2002). Since individuals with self-harm are believed to have difficulties coping with life challenges (Arie et al., 2008), it seemed possible that they would tend to use more words denoting negative emotions and few words reflecting positive emotions in writing about their solutions to everyday difficulties.

A number of explanations could account for the present findings of the text analysis. First, participants could have been

more likely to report routine difficulties rather than real problematic situations. As a consequence, their responses might not have reflected actual problem-solving and the use of words denoting negative emotions, positive emotions and cognitive mechanisms could have been limited. This could have been due to the definition of difficult situation that was used, which may have not adequately tapped real problematic situations. Related to this, participants could have had reported more routine situations because the items that explored problems and solutions asked them to report any circumstance that required a solution or decision, in case they did not experienced a difficult situation during the day. To account for this possibility, the computerised text analysis was conducted a second time, but this time removing all diary entries where participants did not report experiencing a difficulty in response to the question "How many difficult situations did you experience today?". Results remained mostly unchanged, suggesting that (a) responses to this question failed to distinguish between diary entries where real problems were reported from those that did not; or (b) that although this question might be distinguishing diaries with and without real difficulties as defined in the present study, this definition was unable to tap only situations problematic enough to demand problem-solving.

Second, writing samples of the solutions to everyday difficulties could have been too short for reliable text analysis as the number of words used (on average, between 45.8 to 64.5) is equivalent to a short paragraph of four to five sentences. Third, an

alternative explanation is that in this sample of university students participants with a history of self-harm exhibit adequate problem-solving skills, and as a consequence a text analysis of these skills failed to differentiate them from participants without self-harm. Finally, perhaps the most parsimonious explanation is that, in the context of writing about solutions to everyday difficulties, use of words denoting negative emotions, positive emotions and cognitive mechanisms do not provide insight into social problem-solving skills.

#### **5.4.2 Limitations**

The main limitation of the study appears to be the use of a definition of the term problem that may have failed to capture real problematic situations. The definition of the term problem that was used in the present study (i.e., "situations that required a solution or decision, but where the solution or decision was not immediately apparent or available"), seemed to cover routine hassles as well as more serious difficulties. A second and related limitation of the study is the length of the study period, which only covered seven days. In combination with the definition of a problem, this short period could have led participants to report routine difficulties and possibly short responses. A third limitation is the use of a single measure of problem solving, the MEPS, to examine its association with solutions to everyday life difficulties. It would be informative to include a robust test battery of problem-solving to further examine how responses to everyday difficulties relate to well established measures of problem-solving.

Another limitation of the present study is that inter-rater reliability for efficacy, activity/passivity and problem-solving style did not reach satisfactory levels. As mentioned above, it is possible that participants tended to report solutions to routine hassles that may have not demanded problem-solving efforts. These solutions could have been quite brief and straightforward, leading raters to use neutral codings (e.g., equally active and passive, equally effective and ineffective) which could have restricted the range of these variables. To account for this possibility, the inter-rater reliability analysis was conducted again but this time excluding those diary entries where participants did not report experiencing a difficult situation during the day. Once these diary entries were excluded, the inter-rater reliability still did not reach satisfactory levels. Alternatively, it is possible that low inter-rater reliability was due to the inherent complexity of real-life social-problem solving. Real-life problems seem more complex than hypothetical or laboratory based problems, and to involve sub- or multiple problems that individuals attempt to solve in many different ways. To account for the difficulties in scoring multiple problems, only diary entries where one problem was reported were analysed. However, this strategy did not improve the inter-rater reliability and it raised other difficulties, such as reducing the number of diary entries available for analysis.

#### **5.4.3 Recommendations for Future Research**

Future research on real-life problem-solving could benefit by using a clear definition of the term problem in which it is defined as

a situation where one feels confused, puzzled or uncertain (D’Zurilla & Maydeu-Olivares, 1995). Since routine hassles might be more common than more serious problematic situations, future research could use longer periods of data collection to capture problem-solving as it occurs in everyday life. Furthermore, using a Web-based diary participants could be asked to report their problems and attempts to solve them as closely as possible as they occur. The Web-based diaries would allow to time- and date-stamp responses so that compliance with instructions could be examined. Finally, in-depth training of raters might be needed to increase the inter-rater reliability on the scores of problem-solving.

#### **5.4.4 Conclusions**

Social problem solving skills seem to play a major role in self-harm, but the ecological validity of these skills has been questioned because they are often assessed based on responses to hypothetical problems or self-report scales. Recent research suggests that a diary approach to measure problem-solving might provide insight into the problem-solving strategies actually used in daily life. The present study aimed to contribute to this research by asking individuals with and without self-harm to complete a Web-based diary about their problems and attempts to solve them. These solutions to real-life situations were rated on a number of problem-solving dimensions and subjected to a computerised text analysis using Pennebaker’s LIWC.

The computerised text analysis showed that among individuals with and without self-harm, use of words denoting

negative emotions and positive emotions in solutions to everyday problems was relatively infrequent, whereas use of words reflecting cognitive mechanisms was more common. Use of these words were unrelated to attachment insecurities, feelings of entrapment and problem-solving data as derived from the MEPS. Problem solving as it occurs in everyday life appears to be a complex process that involves multiple and inter-related problems and solution strategies that vary greatly in nature and complexity. Future research using a diary approach for the assessment of problem-solving might benefit by using a clear definition of the term problem, perhaps by indicating situations where participants feel uncertain or puzzled. Since everyday hassles might be more frequent than major problems, future diary studies could benefit from using longer periods of data collection.

The pattern of results emerging from the previous chapters suggests that insecurely attached individuals tend to feel defeated (Chapter 2) and trapped (Chapter 2, Chapter 3 and Chapter 4). Another possibility is that insecurely attached individuals do not feel defeated and trapped in general, but that they experience these feelings only when they face stressful events. This possibility is investigated in the following chapter.

## **6 Defeat and Entrapment: Exploring the Interplay between Stressful Events and Attachment Styles**

### **Abstract**

Defeat and entrapment are believed to arise from the interplay between stressful events and individual difference variables (Rasmussen, O'Connor & Brodie, 2008; Williams & Pollock, 2001), a belief that a recent study seemed to confirm for the case of defeat. Johnson, Gooding, Wood, Taylor and Tarrier (2011) found that trait reappraisal exacerbated feelings of defeat in response to a defeat-inducing laboratory stressor. However, as the study did not examine feelings of entrapment it is unknown how these feelings are affected by stressors and other individual difference variables. Particularly those variables that have been associated with self-harm, such as attachment styles. If we can determine how stressors and attachment styles work together to contribute not only defeat but also to entrapment, we would better understand what circumstances, and for whom, are more dangerous for engaging in self-harm. Using laboratory stressors to manipulate feelings of defeat and entrapment, the study reported in this chapter examined whether attachment styles contributed to these feelings.

The findings showed that there is still no evidence to support the view that attachment styles contribute to feelings of defeat and entrapment in response to stressors. However, when other moods were examined, attachment avoidance was associated with a decrease in feelings of calmness. Thus, attachment avoidance could



be implicated in vulnerability to self-harm by fostering negative emotions in response to defeat-type events. Still, studies with larger samples need to investigate whether attachment anxiety and attachment avoidance foster defeat and entrapment in response to specific types of stressors.

### **6.1 Introduction**

Influenced by evolutionary theory and animal studies, past research has investigated what factors contribute to feelings of defeat and entrapment. Among the factors that have been investigated, life event research suggests that stressful life events are particularly important. This research indicates that stressful events that may foster defeat include, among others, losing a close relationship, failing to attain valued resources or experiencing put-downs from others (Taylor et al., 2011). In contrast, events that may precipitate feelings of entrapment include persistent difficult circumstances (e.g., a chronic disease) (Taylor et al.). Kendler, Hettema, Butera, Gardner and Prescott (2003) found that events with attributes of defeat, such as the loss of a loved one, increased the risk of developing depressive symptoms. These researchers also found that events capable of triggering entrapment, such as sustained difficulties with little or no possibility of resolution, were associated with mixed episodes of anxiety and depression.

Although stressful life events are viewed as potent triggers of defeat and entrapment, researchers believe that people vary between each other in how much they will experience the same event as defeating and entrapping (Williams & Pollock, 2001).

Identifying which variables account for this inter-individual variations in defeat and entrapment is important because it might indicate which people are more vulnerable (or resilient) to experience psychological problems. According to Rasmussen et al., (2008) these inter-individual variations in feelings of defeat and entrapment could be accounted for, at least in part, by individual difference variables such as personality and cognitive factors.

### **6.1.1 Individual Differences and Defeat and Entrapment**

Past research seems to support the view that there are inter-individual variations in feelings of defeat and that they are influenced by individual difference variables. However, no single study seems to have extended these findings to feelings of entrapment. The effects of inter-individual variations on feelings of defeat seemed to be confirmed by Johnson, Tarrier & Gooding (2008), who investigated the effects of defeat-inducing laboratory stressors on subsequent feelings of defeat and memory skills. The stressors involved asking participants to obtain a predetermined score by solving anagrams and word puzzles. In reality, it was impossible to attain that score. Johnson et al. found that after this defeat manipulation, participants differed between in each other in how defeated they felt.

In a subsequent study, Johnson et al. (2011) investigated whether variations in feelings of defeat could be accounted for by individual differences in emotion regulation strategies; specifically trait reappraisal and suppression. Whereas reappraisal involves changing the way one thinks about emotion-eliciting situations,

suppression involves inhibiting emotions that have been triggered by these situations (John & Gross, 2004). In the Johnson et al. study undergraduates ( $n = 120$ ) completed self-report questionnaires of reappraisal, suppression and visual analogue scales (VASs) of current mood. Then they were presented with word puzzles that were easy (low defeat) or very difficult (high defeat). After completing these tasks, mood was measured a second time. Johnson et al. found that after being exposed to the high defeat condition, participants who reported high levels of reappraisal felt significantly more defeated than those with low levels of reappraisal. Johnson et al. found similar results on feelings of sadness and negative affect. Suppression, on the other hand, seemed to have no effect on subsequent emotions. Similar patterns of results were found among a sample of patients with a diagnosis of schizophrenia, further suggesting that among clinical and general populations, emotion regulation processes might moderate the impact of potentially defeating events on subsequent feelings of defeat.

Building on the Johnson et al. (2011) study, it seems important to identify individual differences in emotion regulation that could moderate not only feelings of defeat but also feelings of entrapment. Of particular importance might be the identification of individual differences in emotion regulation that are closely linked with interpersonal difficulties, as these difficulties often precipitate self-harm (e.g., Johnson et al., 2002; Skegg, 2005). One such individual difference variable could be attachment styles. According to adult attachment theory, attachment styles include a variety of

cognitive, affective and behavioural strategies involved in the regulation of emotions. If attachment styles influence feelings of defeat and entrapment, these styles should be evident in the way people respond to stressful events capable of triggering defeat and entrapment.

### **6.1.2 Attachment Styles and Defeating and Entrapping Events**

By assessing attachment styles with respect to a wide variety of stressful events, from missile attacks to romantic breakups, attachment researchers have found that these styles play an important role in the way people cope with difficulties (Mikulincer & Shaver, 2007). The stressful events that have been examined seem to include those that contribute to feelings of defeat and entrapment. As mentioned earlier, events capable of fostering defeat include, among others, the loss of a loved person, health or valued material possession, as well as social put-downs or humiliations. Events capable of triggering entrapment, on other hand, involve persistent difficult circumstances where there is little or no possibility of reaching an effective solution. A review of the literature focusing on attachment styles and potentially defeating and entrapping events suggest that attachment insecurities, particularly attachment anxiety, contribute to the development of negative emotions and psychological distress.

In response to potentially defeating events, attachment anxiety seems to contribute to negative emotions, poor adjustment and psychological distress. For example, Fagundes (2012)

investigated how attachment styles influence emotional adjustment following the loss caused by a romantic breakup. About two weeks after a breakup, university students ( $n = 96$ ) answered self-report questionnaires about attachment styles, depression and positive and negative affect. One month later, students completed the depression and affect questionnaires a second time. Fagundes found that soon after the breakup anxiously attached participants tended to report symptoms of depression and negative affect. In contrast, attachment-avoidant participants did not show poor emotional adjustment. One month after the breakup, anxiously attached participants continued to experience symptoms of depression and negative affect.

In another study, Besser and Priel (2009) investigated whether attachment styles contributed to psychological distress in response to rejection from romantic partners—an event that could foster feelings of defeat. These researchers asked young adults from a community sample ( $n = 125$ ) to take part in two different laboratory sessions. In the first session participants completed self-report questionnaires of attachment styles, negative mood, anger and somatic symptoms. In the second session participants imagined themselves being cheated by their romantic partner; they did so by reading a vignette that described a hypothetical scenario where they discovered their partner having sex with another person. After participants read the vignette, Besser and Priel found that anxiously attached participants tended to report negative affect (e.g., sadness, irritableness and tension), anger and somatic symptoms.

In contrast, attachment-avoidant participants seemed to be relatively unaffected by the imaginary rejection.

In response to potentially entrapping events, both attachment anxiety and attachment avoidance seem to contribute to stress, negative appraisals and psychiatric symptoms. These findings are consistent with past research suggesting that attachment avoidance can contribute to negative reactions when the stressors are pervasive or chronic (Mikulincer & Shaver, 2007). Solomon, Ginzburg, Mikulincer, Neria and Ohry (1998) investigated how attachment styles influence psychological adjustment to what could be considered an extreme entrapping event—war captivity. These researchers studied groups of Israeli veterans of the 1973 war between Israel, Egypt and Syria. The groups studied included a control group of combat veterans ( $n = 194$ ) and a group of prisoners of war ( $n = 164$ ), both of which answered self-report questionnaires of attachment styles and psychiatric symptoms. In addition, prisoners of war answered a questionnaire about their subjective experiences during captivity (e.g., loss of control, helplessness and hostility). Compared to the control group, prisoners of war reported more mental health problems. But those prisoners who, in addition, reported attachment insecurities (i.e., attachment anxiety and attachment avoidance) reported more psychiatric symptoms, intrusion of war related thoughts, numbing and problems functioning than securely attached prisoners. Regarding how war captivity was experienced, prisoners of war with attachment insecurities were more likely to feel helpless during

captivity compared to those with a secure attachment style. Solomon et al. findings should be interpreted with caution, as the assessments were carried out 18 years after the war and the use of self-report questionnaires could have introduced recall bias.

Meredith, Strong and Feeney (2005) investigated the role that attachment styles play in the experience of chronic pain, which could be considered as a persistent difficulty with attributes of entrapment. These researchers asked 141 clients of chronic pain rehabilitation centres to answer self-report questionnaires of attachment styles, psychological distress and pain appraisals. People with an insecure attachment tended to perceive their pain in a more negative and threatening way (e.g., feeling controlled by the pain). Specifically, anxiously attached people tended to feel stressed, depressed and anxious, as well as to catastrophise about their pain. People with an avoidant style, on the other hand, tended to feel stressed and anxious.

Although the attachment and stressful events literature reviewed above suggest that attachment styles influence appraisals and coping, one challenge of this literature is to account for the intrinsic variations of the stressors. Most of the studies on attachment and stressful events are correlational and based on people's responses to stressors in real life. Although this type of study might have ecological validity, the severity, amount and nature of the stressors might have a profound influence on people's responses to them. To account for variations on stressful events attachment researchers have presented participants with

standardized laboratory stressors, which often involve receiving negative feedback from others or experiencing rejection from romantic partners. When standardised laboratory stressors have been used, the findings (e.g., Gentzler, Kerns & Keener, 2010) seem to confirm the view that attachment styles influence appraisals of and coping with stressful events. Based on the description of defeating events provided above, the laboratory stressors that attachment researchers often use seem to resemble defeating rather than entrapping events. In investigating whether attachment styles influence reactions to entrapping events, it seems important to present participants with standardised stressors capable of provoking low but ethically acceptable levels of entrapment.

In sum, Johnson et al. (2011) study extends previous research by showing that individual differences in emotion regulation, specifically trait reappraisal, account for variations in feelings of defeat. Yet, there is a need to identify other individual differences variables in emotion regulation—particularly those linked with interpersonal difficulties—that influence not only feelings of defeat but also feelings of entrapment. Identification of these variables could be useful in tailoring of treatments or prevention programs to people at risk of engaging in self-harm. Attachment styles might be an important variable to examine because past research suggests that it influences responses to a wide variety of stressful events; including potentially defeating and entrapping events, interpersonal or non-interpersonal. Furthermore, attachment insecurities have been associated with self-harm (e.g., Grunebaum



et al., 2010). This suggests that assessment of attachment styles could provide insight into the mechanisms that moderate the likelihood that stressful events lead to self-harm behaviour.

### **6.1.3 The Present Study**

The main goal of the study reported in this chapter was to investigate the influence of attachment styles on feelings of defeat and entrapment in response to potentially defeating and entrapping events. Although previous studies have investigated the role that individual differences in emotion regulation play in feelings of defeat in response to stressful events (Johnson et al., 2011), the present study is the first one to examine feelings of entrapment. Furthermore, this is the first study to examine an individual difference in emotion regulation, attachment styles, that past research has linked with self-harm.

A second goal of the study was to investigate whether the influence of attachment styles generalised to other emotions, or whether it was specific to feelings of defeat and entrapment. Based on past research suggesting that attachment anxiety contributes to negative reactions in response to stressful events (Mikulincer & Shaver, 2007), it was expected that attachment anxiety would (a) exacerbate feelings of defeat in response to defeating events; and (b) would exacerbate feelings of entrapment in response to entrapping events. Attachment avoidance, on the other hand, was not expected to increase feelings of defeat in response to defeating events because past research suggests that people with this attachment style tend to be relatively unaffected when confronted

with these events. However, in response to an entrapping event, which is assumed to reflect chronic stress, attachment avoidance was expected to increase feelings of entrapment and negative emotions.

To accomplish these goals, participants completed attachment and mood measures prior to taking part in computer tasks to manipulate feelings of defeat and entrapment. To manipulate feelings of defeat participants completed an anagram task (Johnson et al., 2008) that had a fixed success outcome (low defeat) or a fixed failure outcome (high defeat). To manipulate feelings of entrapment participants viewed a computer animation of a journey inside a maze that had an exit (low entrapment) or no exit (high entrapment). After taking part in these tasks, participants completed mood measures a second time.

## **6.2 Methods**

### **6.2.1 Participants**

Eighty undergraduates from the University of Nottingham participated in the study, their ages ranged from 18 to 25 years ( $M = 20.75$ ,  $SD = 1.08$ ) and 65% of them were females ( $n = 52$ ). A 2 x 2 between-subjects design was used with each subject assigned to one of four conditions, but with the restriction that there were 20 in each condition. The variables manipulated (described below) were defeat (low defeat vs high defeat) and entrapment (low entrapment vs high entrapment).

### 6.2.2 Measures

**Current mood.** Current mood was measured with VASs of defeat, sadness, calmness, happiness and energy (Johnson et al., 2008), as well as with a VAS of entrapment that was developed for the present study. Each VAS consisted of a 10 cm vertical line with a label at the top describing high levels of a mood (e.g., "Very trapped") and a label at the bottom describing absence of that mood (e.g., "Not at all trapped"). On each VAS, participants drew a perpendicular mark at the place they felt it reflected their mood at the moment. Scores of the VASs were obtained by measuring in centimetres the distance from the bottom of the line to the mark.

**Attachment styles.** Participants completed the short version of the Experiences in Close Relationships Scale (Wei et al., 2007). This is a 12-item self-report questionnaire with items rated from 1 (strongly disagree) to 7 (strongly agree) that measures anxiety and avoidance about close relationships. The anxiety and avoidance subscales are measured by six items each and their scores are computed by summing the items for each scale; higher scores reflect higher levels of the attachment dimension measured. Wei et al. reported good internal consistencies for attachment anxiety ( $\alpha = .78$ ) and attachment avoidance ( $\alpha = .84$ ). In the present study, Cronbach's alpha coefficients were .66 for attachment anxiety and .85 for attachment avoidance.

**Puzzles to induce low defeat and high defeat.** To manipulate feelings of defeat participants completed the anagram task that was developed by Johnson et al. (2008). Using E-prime,

the anagram task involves typing a word by transposing the letters of another word presented on the computer screen (e.g., presented with "act", participants were expected to type "cat"). The task consists of 30 trials and following each trial the computer screen shows feedback stating whether the response was correct or incorrect. If participants do not type a word after a few seconds, the screen shows an automatic feedback stating that the response was incorrect. At the end of the 30 trials the screen shows the score attained. The passing rate of the anagram task varied between conditions. To induce low defeat, the pass rate was set at 10 correct anagrams, with 7 of the 30 trials being easy to solve. To induce high defeat, the pass rate was set at 23 correct anagrams, but 7 of the 30 trials were impossible to solve. The experimenter was in an adjacent computer within the lab while participants completed the anagram task, and when the final score was shown the experimenter stated whether the participant passed or failed the task.

**Virtual mazes to induce low entrapment and high entrapment.** To manipulate feelings of entrapment, participants were asked to view a computer animation of a fictional character searching for an exit inside a maze. By sitting in front of the computer to view the animation, participants experienced the journey inside the maze from the point of view of this fictional character. The animation, which was designed with the three-dimensional modelling programme Google SketchUp, aimed to give participants the sense of being walking inside a maze.

As in the puzzle task, the experimenter was in an adjacent computer within the lab while participants viewed the computer animation. The characteristics of the animation and the laboratories where it was presented varied between conditions. To induce low entrapment, in a medium-sized laboratory participants observed a 30 seconds animation where the fictional character reached an exit. To induce high entrapment, in a small-sized laboratory, participants observed a 2 minute animation where the character did not reach an exit from the maze. The walls of this latter maze were also higher and darker, and every 10 seconds the experimenter's computer beeped to increase the aversive nature of the entrapping environment. A pilot study conducted with university students showed that those who were assigned to the high entrapment condition reported higher levels of entrapment.

### **6.2.3 Procedure**

Participants were recruited through e-mails that were sent to psychology undergraduates at the University of Nottingham. These e-mails stated that the experiment was not suitable for students with a previous history of depression, anxiety or self-harm. To increase sample size, students who took part in the study were asked to recommend additional potential participants.

Students arrived at the laboratory individually for a study ostensibly concerning the relation between mood and computer tasks. After giving informed consent, participants completed attachment and mood measures. Then they were asked to solve the anagrams and to view the animation of a journey inside a maze. The

presentation of the anagram task and virtual maze was counterbalanced. After completing these tasks participants answered mood measures a second time, as well as a number of tests unrelated to the present study. At the end of the study, the experimenter debriefed participants by explaining that they were randomly assigned to each condition and that solving the anagrams was unrelated to their skills. To increase positive affect, the experimenter asked them to read a list of funny howlers written by children (Görizt, 2007) and gave them a surprise gift of a sweet (Isen & Geva, 1987).

The study was approved by the Ethics Committee of the School of Psychology at the University of Nottingham.

#### **6.2.4 Statistical analysis**

To assess whether groups formed by condition assignment were homogenous, baseline data were analysed by one-way analyses of variance with condition assignment as independent variable and each VAS and attachment style as dependent variable. To determine whether the defeat and entrapment conditions provoked the expected feelings, two-way analyses of variance were conducted with defeat and entrapment conditions as independent variables and each post-induction VAS as dependent variable. Finally, hierarchical regression analyses were conducted to assess whether attachment styles moderated the effect of defeat and entrapment conditions on post-induction feelings of defeat and entrapment, as well as on other post-induction VASs. Two sets of hierarchical regression analyses were conducted for each post-

induction VAS: one included attachment anxiety as a covariate and the other included attachment avoidance.

The first step of the regression analyses included the attachment variable and the defeat and entrapment conditions. The second step included interaction terms between conditions (i.e., defeat condition x entrapment condition), and between each condition and the attachment dimension measured (e.g., defeat condition x attachment anxiety; and entrapment condition x attachment anxiety). Categorical variables of defeat and entrapment conditions were entered into the regression analyses using contrast codes (low defeat = -1, high defeat = 1; low entrapment = -1, high entrapment = 1). These codes were used for two main reasons: (a) because coefficients produced by these codes inform about mean differences between the levels of categorical variables; and (b) because tests of the significance of these coefficients are equivalent to test differences as conducted by ANOVA (Judd, 2000). Attachment styles were centred at their mean value prior to entering them in the regression analyses (Frazier, Tix and Barron, 2004). Significant interaction terms between conditions and attachment indicated that mean differences between groups (e.g., low defeat and high defeat) varied as a function of attachment style. Significant interaction terms were further investigated by examining mean differences at low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of the attachment style examined (Cohen, Cohen, West & Aiken, 2003). These latter analyses were conducted

with the aid of the SPSS modprobe script developed by Hayes and Matthes (2009).

## 6.3 Results

### 6.3.1 Baseline Scores

Prior to investigating baseline differences between conditions, baseline data were explored for missing values and the fit between the distributions and the assumptions of analysis of variance. Exploration of baseline data revealed skewed distributions in all but the energy variable. Negative emotions (i.e., defeat, entrapment and sadness) were positively skewed, whereas positive emotions (i.e., calmness and happiness) were negatively skewed. Skewed distributions were examined to detect outliers, which were defined as cases with a  $z$  score beyond  $\pm 3$  (Norman & Streiner, 2008). Positive outliers were found in defeat, entrapment and sadness, whereas negative outliers were found in calmness. Logarithmic transformations improved the distribution of defeat, entrapment and sadness, whereas reflected square root transformations improved the distribution of calmness and happiness. Levene's tests and  $F_{\max}$  ratios revealed that the assumption of homogeneity of variance was met for each baseline VAS and attachment style.

One-way analysis of variance revealed that there were no significant differences between the groups on any of the baseline mood measures and attachment styles ( $F$ -ratios ranged from 0.12 to 1.53, all  $ps > .05$ ). Table 6.1 shows baseline scores on the VAS and attachment measures for each condition and across conditions.



**Table 6.1 Means, Standard Deviations and Analysis of Variance (ANOVA) Results for Baseline Measures as a Function of Condition Assignment**

Baseline measure	Low defeat / low entrapment		High defeat / low entrapment		Low defeat / high entrapment		High defeat / high entrapment		Across conditions		F (3, 76)
	M	SD	M	SD	M	SD	M	SD	M	SD	
Defeat VAS <sup>a</sup>	1.4 (0.3)	1.8 (0.2)	2.5 (0.4)	2.5 (0.3)	1.8 (0.3)	2.2 (0.3)	1.8 (0.3)	2.0 (0.3)	1.9 (0.4)	2.1 (0.3)	0.78
Entrapment VAS <sup>a</sup>	2.7 (0.4)	2.9 (0.4)	2.7 (0.4)	2.9 (0.4)	1.6 (0.3)	2.2 (0.3)	1.8 (0.3)	2.2 (0.3)	2.2 (0.4)	2.6 (0.3)	0.81
Sadness VAS <sup>a</sup>	1.2 (0.3)	1.4 (0.2)	2.6 (0.4)	2.5 (0.3)	1.2 (0.3)	1.6 (0.2)	1.9 (0.4)	2.2 (0.3)	1.7 (0.3)	2.1 (0.3)	1.53
Calmness VAS <sup>a</sup>	7.6 (2.1)	1.9 (0.4)	7.0 (2.2)	2.5 (0.5)	7.5 (2.1)	2.1 (0.5)	7.7 (2.0)	2.0 (0.4)	7.4 (2.1)	2.1 (0.5)	0.32
Happiness VAS <sup>a</sup>	7.4 (2.1)	1.4 (0.3)	6.4 (2.3)	2.2 (0.5)	7.4 (2.1)	1.1 (0.2)	6.8 (2.3)	1.6 (0.3)	7.0 (2.2)	1.7 (0.4)	1.52
Energy VAS	5.6	2.1	5.0	2.1	5.6	2.0	5.4	2.0	5.4	2.0	0.43
Attachment anxiety	19.9	5.1	20.0	5.4	20.6	6.0	20.8	6.5	20.3	5.7	0.12
Attachment avoidance	13.1	5.4	15.3	6.7	16.7	5.9	14.9	6.3	15.0	6.1	1.16

Note . VAS = visual analogue scale.

<sup>a</sup>Scores on these scales were transformed to reduce skew: logarithmic transformations were used for defeat, entrapment and sadness; reflected square root transformations for calmness and happiness. Values in parentheses represent transformed variables. Where transformations were conducted, F-ratios have been reported for transformed variables.

### 6.3.2 Manipulation Check

Separate two-way ANOVAs examined the effects of defeat condition and entrapment condition on post-induction feelings of defeat and entrapment. Similar analyses examined the effect of these conditions on the other mood measures. Post-induction scores were explored for missing values, outliers and the fit between their distributions and the assumptions of ANOVA. Except on post-induction energy, the rest of the VAS showed skewed distributions. Inspection of skewed distributions did not reveal univariate outliers. A square root transformation improved the distribution of post-induction defeat, whereas logarithmic transformations improved the

distribution of post-induction entrapment and sadness. A reflected square root transformation improved the distribution of post-induction happiness. Levene's tests and  $F_{\max}$  ratios revealed that the assumption of homogeneity of variance was met for each post-induction VAS.

Participants who tried to solve anagrams but had a fixed failure outcome (high defeat) were expected to feel more defeated than those who tried to solve anagrams but had a fixed success outcome (low defeat). Regarding the entrapment condition, participants who viewed a virtual maze without an exit (high entrapment) were expected to feel more trapped than those who viewed a virtual maze with an exit (low entrapment). As shown in Table 6.2, there was a significant main effect of defeat condition on subsequent feelings of defeat  $F(1, 76) = 5.77, p = .019$ . In addition, the defeat condition had a significant main effect on subsequent feelings of sadness  $F(1, 76) = 4.32, p = .041$ , and a trend towards a significant main effect on happiness  $F(1, 76) = 3.73, p = .057$ . This indicated that participants who were assigned to the high defeat condition felt more defeated and sad, and tended to feel unhappier, than those who were assigned to the low defeat condition. There was no significant main effect of entrapment condition on post-induction feelings of entrapment or on any of the post-induction mood measures ( $F$ -ratios ranged from 0.02 to 1.41, all  $ps > .05$ ). Similarly, there was no evidence of a significant interaction between defeat and entrapment conditions ( $F$ -ratios ranged from 0.03 to 0.82, all  $ps > .05$ ). These findings indicated that, as expected, the

defeat condition was effective in increasing feelings of defeat. However, the entrapment condition was ineffective in increasing feelings of entrapment. It remains to be examined whether the effects of the defeat manipulation varied as a function of participants' attachment style.

**Table 6.2 Means, Standard Deviations and Analysis of Variance (ANOVA) for Post-induction Mood as a Function of Defeat (DEF) and Entrapment (ENT) Conditions**

Postinduction mood	Low entrapment		High entrapment		ANOVA $F(1, 76)$		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	DEF	ENT	DEF x ENT
Defeat VAS <sup>a</sup>					5.77*	0.04	0.25
Low defeat	2.8 (1.8)	2.5 (0.6)	3.3 (1.9)	3.0 (0.7)			
High defeat	4.4 (2.3)	2.5 (0.6)	4.3 (2.2)	2.7 (0.6)			
Entrapment VAS <sup>a</sup>					0.27	0.02	0.82
Low defeat	3.0 (0.5)	2.7 (0.3)	2.7 (0.4)	3.0 (0.4)			
High defeat	2.7 (0.5)	2.7 (0.3)	3.2 (0.5)	2.5 (0.3)			
Sadness VAS <sup>a</sup>					4.32*	0.08	0.13
Low defeat	2.0 (0.4)	1.9 (0.3)	2.3 (0.4)	2.5 (0.3)			
High defeat	3.6 (0.6)	2.8 (0.3)	3.1 (0.5)	2.4 (0.3)			
Calmness VAS					0.01	1.41	0.32
Low defeat	6.6	1.8	6.3	2.2			
High defeat	6.8	1.9	6.1	2.2			
Energy VAS					3.36	0.10	0.25
Low defeat	5.8	2.3	5.9	1.7			
High defeat	5.2	2.1	4.9	1.6			
Happiness VAS <sup>a</sup>					3.73 <sup>†</sup>	0.60	0.03
Low defeat	7.0 (2.2)	2.0 (0.4)	6.6 (2.3)	2.0 (0.4)			
High defeat	6.2 (2.4)	1.8 (0.4)	5.9 (2.4)	1.8 (0.4)			

Note. VAS=visual analogue scale.

<sup>a</sup>Scores on these scales were transformed to reduce skew: square root transformation was used for defeat; logarithmic transformations for entrapment and sadness; and reflected square root transformation for happiness. Values in parentheses represent transformed variables. Where transformations were conducted,  $F$ -ratios have been reported for transformed variables.

\* $p < .05$ . \*\* $p < .01$ . <sup>†</sup> $p < .06$ .

### 6.3.3 Defeat and Entrapment Conditions on Post-induction

#### Mood: Attachment as Moderator

Hierarchical regression analyses examined whether attachment styles moderated the effect of defeat and entrapment conditions on post-induction feelings of defeat and entrapment. Similar analyses examined whether the effects generalised to other moods. Evaluation of assumptions of multiple regression (Tabachnick & Fidell, 2007) led to transformation of variables to reduce skew and improve the normality, linearity and homoscedasticity of residuals. A square root transformation reduced the skew in post-induction defeat, whereas logarithmic transformations reduced the skew in post-induction entrapment and sadness. A reflected square root transformation reduced the skew in post-induction happiness. There were no univariate outliers using a criterion of  $z$  score beyond  $\pm 3$  (Norman & Streiner, 2008) in any of the post-induction VAS measures and attachment scales. Similarly, no multivariate outliers were found among the defeat and entrapment conditions and each attachment style, using a  $p < .001$  criterion for Mahalanobis distance (Tabachnick & Fidell).

**Attachment anxiety as moderator.** As mentioned above, the manipulation check showed that participants who tried to solve anagrams but had a fixed failure outcome (high defeat) felt, on average, more defeated, sad and unhappy than those who tried to solve the anagrams but had a fixed success outcome (low defeat). Building on the findings that attachment anxiety exacerbates negative emotions in response to stressful events, this attachment

style was expected to exacerbate the effect of defeat condition on subsequent feelings of defeat. As shown in Table 6.3, attachment anxiety did not moderate the effect of defeat condition on subsequent feelings of defeat. Similarly, attachment anxiety did not moderate the effect of defeat condition on feelings of sadness and happiness.

Table 6.3 Hierarchical Regression Analyses Relating Attachment Styles and Laboratory Conditions to Post-induction Mood

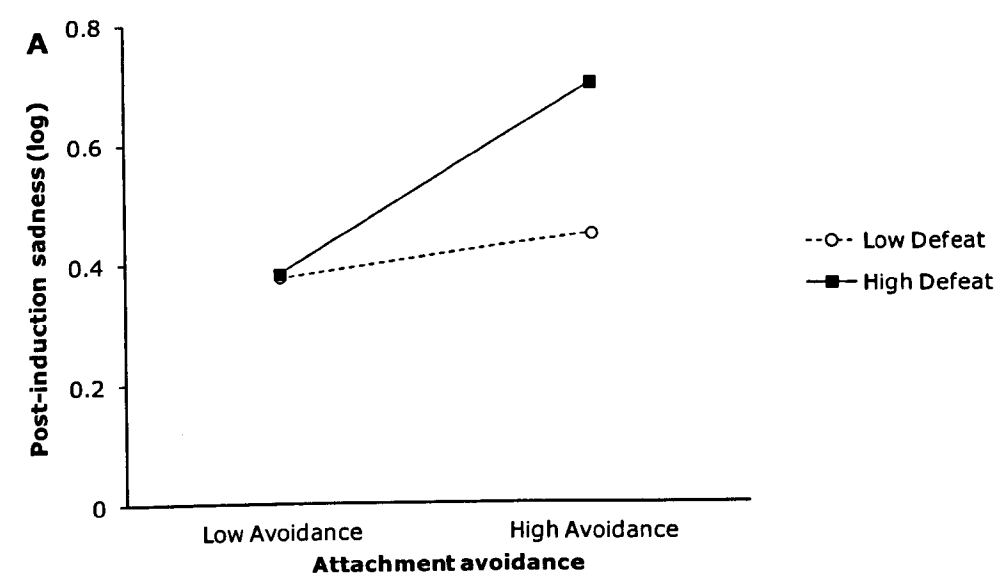
Step and variable	Post-induction Mood											
	Defeat VAS <sup>a</sup>			Entrapment VAS <sup>a</sup>			Sadness VAS <sup>a</sup>			Calmness VAS		
	B	SE	B	B	SE	B	B	SE	B	B	SE	B
Attachment anxiety as moderator												
Step 1												
Attachment anxiety (ANX)	.016	.013	.019**	.006	.006	.014*	.006	.006	-.122**	.038	.038	.023**
Defeat condition (DEF) <sup>b</sup>	.173*	.072	.018	.035	.035	.068*	.032	.032	-.013	.213	.213	.086*
Entrapment condition (ENT) <sup>b</sup>	.009	.072	-.002	.035	.035	-.014	.032	.032	-.223	.213	.213	.026
Step 2												
Attachment anxiety (ANX)	.016	.013	.020**	.006	.006	.014*	.006	.006	-.109**	.038	.039	.023**
Defeat condition (DEF)	.173*	.072	.018	.035	.035	.068*	.032	.032	-.012	.210	.215	.086*
Entrapment condition (ENT)	.009	.072	-.003	.035	.035	-.014	.032	.032	-.226	.210	.216	.026
DEF x ENT	-.031	.072	.036	.035	.035	-.015	.032	.032	-.099	.210	.216	-.010
DEF x ANX	-.017	.013	-.007	.006	.006	.008	.006	.006	-.067	.037	.038	.004
ENT x ANX	.005	.013	-.005	.006	.006	-.004	.006	.006	-.043	.038	.039	.001
Attachment avoidance as moderator												
Step 1												
Attachment avoidance (AVO)	.013	.012	.009	.006	.006	.017**	.005	.005	-.039	.038	.036	.021**
Defeat condition (DEF) <sup>b</sup>	.173*	.072	.018	.037	.037	.067*	.031	.031	-.015	.225	.214	.085*
Entrapment condition (ENT) <sup>b</sup>	.004	.073	-.002	.037	.037	-.023	.031	.031	-.238	.227	.216	.018
Step 2												
Attachment avoidance (AVO)	.012	.012	.009	.006	.006	.016**	.005	.005	-.029	.037	.037	.020**
Defeat condition (DEF)	.153*	.073	.019	.037	.037	.061*	.031	.031	-.031	.221	.221	.084*
Entrapment condition (ENT)	.010	.074	.005	.038	.038	-.012	.031	.031	-.349	.223	.223	.028
DEF x ENT	-.026	.074	.037	.038	.038	-.003	.031	.031	-.074	.223	.223	.005
DEF x AVO	.004	.012	.007	.006	.006	.010*	.005	.005	-.104**	.037	.037	.009
ENT x AVO	-.021	.012	.001	.006	.006	-.007	.005	.005	-.015	.037	.037	-.001

Note. VAS = visual analogue scale.

<sup>a</sup>Scores on these scales were transformed to reduce skew: square root transformation was used for defeat; logarithmic transformations for entrapment and sadness; and reflected square root transformation for happiness. <sup>b</sup>Contrast codings were used for defeat condition (low defeat = -1; high defeat = 1) and entrapment condition (low entrapment = -1; high entrapment = 1).

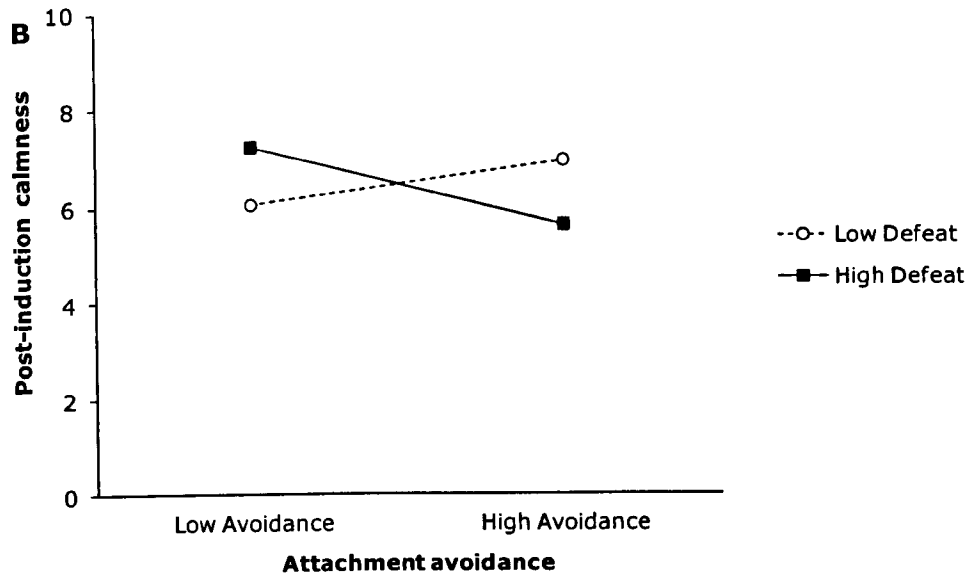
\* $p < .05$ . \*\* $p < .01$ . \* $p < .06$ .

that in response to a defeat-inducing event, attachment-avoidant participants felt sadder than those with low levels of attachment avoidance.



**Figure 4. Attachment Avoidance as Moderator of the Effect of Defeat Condition on Subsequent Feelings of Sadness**

Regarding feelings of post-induction calmness, Figure 5 shows that at low levels of attachment avoidance participants in the high defeat group felt slightly calmer than those participants in the low defeat group ( $b = .601, p = .059$ ); although this difference did not reach significance at  $p < .05$ . However, at high levels of attachment avoidance, participants in the high defeat group felt significantly less calm than those in the low defeat group ( $b = -.662, p = .041$ ). This finding suggests that in response to a defeat-inducing event, attachment-avoidant participants felt less calm than those with low levels of attachment avoidance.



**Figure 5. Attachment Avoidance as Moderator of the Effect of Defeat Condition on Subsequent Feelings of Calmness**

In sum, there was no evidence that attachment anxiety moderated the effect of defeat condition on subsequent feelings of defeat, sadness and happiness. However, when attachment avoidance was examined as a moderator, this attachment style moderated the effect of defeat condition on subsequent feelings of calmness. Moreover, attachment avoidance showed a trend towards statistical significance in moderating the effect of defeat condition on subsequent levels of sadness.

#### **6.4 Discussion**

The study reported in this chapter aimed to examine whether attachment insecurities exacerbated feelings of defeat and entrapment in response to potentially defeating and entrapping events. A secondary aim was to investigate whether these results were specific to feelings of defeat and entrapment, or whether they generalised to other moods. The main finding of the study was that



attachment insecurities did not exacerbate feelings of defeat and entrapment in response to stressful events. However, when other moods were examined attachment avoidance was associated with reduced levels of calmness, and a tendency towards increased sadness, in response to a defeat-inducing stressor.

The stressor to induce defeat developed by Johnson et al. (2008) increased, as expected, feelings of defeat. In contrast, the stressor to induce entrapment that was developed for the present study did not affect any of the moods measured. This latter finding limited examining the effect of a potentially entrapping event on subsequent mood and whether attachment styles moderated this effect. Past research indicates that life events that can foster feelings of entrapment involve chronic stressors or pervasive aversive situations. Although a pilot study suggested that the laboratory condition to induce entrapment was effective, it might not have been sufficiently strong to produce feelings of entrapment once a larger sample was examined.

#### **6.4.1 Stressful Events and Mood: The Role of Attachment**

Contrary to predictions, attachment anxiety did not exacerbate feelings of defeat and negative emotions in response to the defeat-inducing stressor. This finding contrasts with past research that suggests that attachment anxiety fosters negative emotions in response to a wide variety of stressful events (Shaver & Mikulincer, 2006)—including those that are potentially defeating (e.g., Fagundes, 2012). One possible explanation for this finding is that attachment anxiety is more likely to contribute to feelings of

defeat when the stressor is interpersonal in nature. According to attachment theory, anxiously attached people tend to be overly concerned about their close relationships and to perceive that others are unsupportive (Collins & Feeney, 2004). The sensitivity of anxiously attached people to interpersonal stressors is supported by Besser and Priel's (2009) study, where anxiously attached people, but not avoidant, tended to feel depressed, hostile and tense after reading a vignette that described a hypothetical scenario where their romantic partner betrayed them. Although the defeat-inducing stressor that was used in the present study increased feelings of defeat, it could have lacked the interpersonal component that might be more relevant for attachment anxiety. An alternative explanation is that the interaction terms involving attachment anxiety had low statistical power because the internal consistency of this subscale was somewhat low (Cronbach's  $\alpha = .66$ ). According to Frazier et al. (2004) measurement error in individual variables reduces the power of their interaction terms.

Attachment avoidance moderated the effect of defeat condition on subsequent feelings of calmness, and there was a trend in moderating levels of sadness. Specifically, after being presented with a defeat-inducing stressor, attachment-avoidant individuals tended to feel less calm and sadder. This finding is somewhat difficult to explain, given that past research suggests that attachment-avoidant individuals are relatively unaffected by defeat-type events. It may be that for attachment-avoidant individuals the inability to pass the anagram task conflicted with their self-

conceptions. According to attachment theory, attachment-avoidant individuals hold overly positive self-conceptions as a way of protecting themselves from painful memories of rejection from caregivers; memories that could have engendered a sense of being unworthy of affection (Bartholomew, 1990). This conflict between their performance in the anagram task and their views could have contributed to the reduction in calmness and an increase in sadness. As a recent study found that attachment avoidance was an important predictor of suicide attempts (Grunebaum et al., 2010), future research could investigate whether avoidance increases the risk of self-harm by fostering vulnerability to stressful events that cause conflict between their actual performance and their self-conceptions.

To further investigate the role of attachment on feelings of defeat and entrapment, future research could examine whether attachment anxiety and attachment avoidance foster these feelings in response to specific types of stressors. Attachment-avoidant individuals might be prone to feel distressed when confronted with events that reflect negatively on their personal performance. In contrast, attachment-anxious individuals might react more negatively to stressful events that are interpersonal in nature.

#### **6.4.2 Limitations**

The findings of this study must be considered in light of a number of limitations. First, the defeat and entrapment conditions might not reflect experiences and situations of the wider world. Stressful life events capable of fostering feelings of defeat and

entrapment might be intense and influenced by the interaction of multiple factors. Using laboratory stressors, however, minimised the influence of confounding factors that might be playing a role in naturally occurring events. Second, although the VAS of defeat has been found to be sensitive to experimental manipulation (Johnson et al., 2008), it is unclear whether the VAS of entrapment could be sensitive as well. A VAS of entrapment was used because a pilot study suggested that it was capable of capturing changes on feelings of entrapment. Furthermore, it seemed important to use a short measure to capture immediate changes on entrapment after attempting to manipulate this feeling. Finally, the findings are based on a community sample and they might not generalise to clinical populations.

### **6.4.3 Conclusions**

Feelings of defeat and entrapment have been linked to suicidal behaviour and there is an increased interest in understanding the role that external and person factors might play in the development of these feelings. Individual differences in emotion regulation seem to influence feelings of defeat in response to stressful events, but past research has not extended these findings to feelings of entrapment. The study reported in this chapter investigated whether attachment insecurities contributed to feelings of defeat and entrapment in response to laboratory stressors. These stressors were designed to reflect potentially defeating or entrapping events, and both involved computer tasks. Whereas the defeating condition increased feelings of defeat and

negative affect, the entrapping condition had no effect in any of the feelings measured.

Results showed that attachment insecurities did not contribute to feelings of defeat or entrapment in response to the laboratory stressors. However, attachment avoidance contributed to the experience of less calmness, and a tendency towards more sadness, after inducing defeat. It is possible that attachment-avoidant individuals react negatively to situations that reflect a conflict between their actual performance and their self-conceptions; conceptions that tend to be overly positive and excessively self-reliant (Bartholomew, 1990). This could be one way in which attachment avoidance fosters vulnerability to suicidal behaviour, yet further research is needed to support this view.

## 7 General Discussion: Vulnerability to Self-Harm

### Abstract

Although past research has made significant advances in identifying what factors are associated with self-harm, experts now emphasise the need to further examine how distal and proximal factors interact to produce this behaviour (Hawton et al., 2012; Nock, 2012; O'Connor et al., in press). This thesis set out to examine whether attachment insecurities, which are viewed as distal risk factors for self-harm (Mikulincer & Shaver, 2007), work together with more proximal correlates of this behaviour—mainly, feelings of entrapment as viewed by the cry of pain model (Williams, 2001). No previous study has examined this issue and the present research addressed this gap in knowledge. This chapter discusses the main findings of the thesis and their theoretical and practical implications.

Overall, the results showed that self-harm thoughts and behaviour were significantly associated with attachment insecurities and feelings of entrapment. Moreover, attachment insecurities were related to feelings of entrapment, irrespective of problem-solving skills. However, entrapment might not yet be able to explain why attachment insecurities were related to self-harm thoughts. Taken together, the findings suggest that sensitivity to defeat and entrapment could be rooted in early attachment experiences. Furthermore, assessment of attachment can help identify individuals at risk of engaging in self-harm. Still, large longitudinal studies are

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needed to clarify the direction of the relationship between attachment insecurities, feelings of defeat and entrapment and self-harm; in addition, future experimental studies could investigate whether attachment insecurities act as a diathesis to defeat and entrapment in response to stressful life events.

## **7.1 Main Findings**

The present thesis yielded three broad results. First, people with self-harm thoughts were likely to report attachment insecurities and feelings of defeat and entrapment; entrapment was related to attachment insecurities, but it did not explain why individuals with attachment insecurities were likely to report self-harm thoughts. Second, feelings of entrapment decreased as the ability to effectively solve life problems increased. Social problem solving skills, however, did not moderate the relationship between attachment insecurities and feelings of entrapment. Finally, in response to a defeat-inducing event insecurely attached people felt significantly less calm than securely attached individuals.

### **7.1.1 Attachment Insecurities, Feelings of Defeat and Entrapment and Self-Harm Thoughts**

With regard to the first finding, there was a significant association between self-harm thoughts, attachment insecurities and feelings of defeat and entrapment. This first finding was suggested by the studies reported in Chapter 2 and Chapter 3, which examined suicide ideation and NSSI thoughts respectively. NSSI thoughts were examined in an effort to shed light on the



psychological processes that might underlie both types of self-harm thoughts.

Chapter 2 was based on past cross-sectional research that suggests a relationship between attachment insecurities and suicide ideation (e.g., Lessard & Moretti, 1998), but it further examined what could account for this relationship using a longitudinal design. Although a previous cross-sectional study (DiFilippo & Overholser, 2000) found that depression mediated the relationship between attachment insecurities and suicide ideation among adolescent psychiatric inpatients, it seemed important to investigate other mediators since suicide ideation might arise in the absence of depression—particularly among university students (Arria et al., 2009). Based on the cry of pain model, defeat and entrapment were examined as mediators of the attachment and suicide ideation relationship. To examine this issue university students completed an anonymous Web-based survey that included measures of attachment, defeat, entrapment and suicide ideation. About three months later they completed the survey a second time. The data collection periods were expected to reflect a non-exam (baseline) and an exam period (follow-up), in an effort to increase the chances that suicide ideation would vary significantly over the course of the study; thereby allowing to examine whether attachment insecurities predicted changes in this outcome.

At follow-up the response rate was relatively low (45%), with most of the participants reporting academic exams in the following month and suicide ideation remaining mostly unchanged. As a

consequence, the mediation analysis mentioned above was carried out with baseline data to increase the sample size. This mediation analysis revealed that insecurely attached participants, specifically anxiously attached, were prone to report suicide ideation. Moreover, these individuals tended to feel defeated and trapped, both feelings being strongly related to suicide ideation. Since the defeat and entrapment scales were highly correlated with each other, they were combined by summing their scores to form a single scale named defeat-entrapment. The combined scores of defeat and entrapment, however, did not mediate the relationship between attachment anxiety and suicide ideation.

The relationship between attachment anxiety and suicide ideation is consistent with past research and provides support for a link between attachment insecurities and self-harm thoughts. Lessard and Moretti (1998) found that attachment anxiety was associated with the frequency and severity of suicide ideation among adolescents in psychiatric treatment. Moreover, these researchers found that as the level of attachment anxiety increased the lethality of the method contemplated to commit suicide increased as well. In non-clinical samples attachment insecurities also seem to be associated with suicidality, as suggested by the study conducted by de Jong (1992). In this study, de Jong compared groups of undergraduates with a history of suicide ideation or suicide attempt, a group of depressed undergraduates without such a history, and a comparison group. Results showed that students with a history of suicidality were more likely to exhibit

an insecure attachment, as indicated by self-reported perceptions of having unresponsive parents. The bivariate correlations reported in Chapter 2 revealed that attachment avoidance was related to suicide ideation. This latter finding seems consistent with the findings of a recent longitudinal study conducted by Grunebaum et al. (2009), in which attachment avoidance predicted suicidal ideation at three months follow-up among depressed patients.

Previous research has not examined the relationship between attachment insecurities and feelings of defeat and entrapment, yet a recent study provided evidence to support a link between these feelings and individual difference variables. Sturman and Mongrain (2008) found that self-critical individuals tended to feel defeated and internally trapped. Since self-criticism is believed to develop during the person's childhood, Sturman and Mongrain speculated that adverse familial conditions could be implicated in the development of vulnerability to later experiences of defeat and entrapment. The findings of the study reported in Chapter 2 seem consistent with this view in that attachment insecurities, which are believed to result from inadequate infant-caregiver interactions, were related to the sense of being defeated and trapped.

Feelings of defeat and entrapment were related to suicide ideation, a finding that appears to support the view that these feelings play a major role in suicidality. Feelings of defeat and entrapment have been found to be associated with suicide ideation in clinical (Rasmussen et al., 2010) and non-clinical samples (Taylor et al., 2010), and a recent systematic review concluded that there is

evidence to support a link between these feelings and suicidal behaviour (Taylor et al., 2011). As in a previous study (Rasmussen et al.), defeat and entrapment were highly correlated with each other ( $r_s = .86$ ) and to eliminate problems of multicollinearity defeat and entrapment were combined by summing their scores to form a single variable. This new variable, named defeat-entrapment, was then examined as a mediator of the relationship between attachment insecurities and suicide ideation.

As reported in Chapter 2, although attachment anxiety was no longer a significant predictor of suicide ideation after including the defeat-entrapment variable, the indirect effect was not significant as indicated by a bootstrapping procedure (Preacher & Hayes, 2004). It is possible that the study had low power to detect a significant indirect effect because the events-per-predictor ratio (i.e., cases with suicide ideation per number of predictor variables) was relatively low (Babyak, 2004). Alternatively, more complicated mediation models may be needed to account for the relationship between attachment insecurities and suicide ideation. For instance, it is possible that attachment anxiety leads to a sense of defeat and entrapment that translates into a sense of hopelessness, which in turn motivates suicidal thoughts. Another possibility is that the path from attachment insecurity to defeat-entrapment, and to suicide ideation, is present only among individuals with low positive future thinking; but not among those with higher levels of positive future thinking.

As mentioned earlier, researchers often distinguish between self-harm performed with the intention to die and self-harm performed without the intention to die (or NSSI) as a number of studies suggest that these behaviours have different psychological correlates (Nock, 2010). However, these behaviours often co-occur within the same person (Whitlock & Knox, 2007) and similar psychological processes could be operating in both (Claes et al., 2010). Moreover, researchers have found that attachment insecurities are related to NSSI thoughts (Levesque et al., 2010) and NSSI behaviour (Kimball & Diddams, 2007), the latter being associated with a desire to escape an aversive state (Chapman et al., 2006). It is thus possible that NSSI thoughts and suicide ideation have common psychological processes, one of these processes being that attachment insecurities foster self-harm thoughts by their effects on entrapment. The study reported in Chapter 3 aimed to shed light on this issue. This study (and the studies reported in Chapter 4 and 5) focused in entrapment for two main reasons, one theoretical and the other practical. Theoretically, according to the cry of pain model of self-harm entrapment is the predominant motivation for this behaviour (Williams, 2001). At a more practical level, the previous study showed that defeat and entrapment were highly correlated, suggesting that measuring both constructs with the only psychometrically robust scales available (Gilbert & Allan, 1998) could introduce problems of multicollinearity in the models. In deciding what measures to exclude, defeat was selected because it seemed redundant with entrapment.

In the study reported in Chapter 3, participants completed a Web-based survey that included measures of attachment, entrapment and NSSI thoughts. One month later, they completed the survey a second time. Although in this study the response rate at follow-up was almost 78%, the number of NSSI thoughts in the past month remained mostly unchanged from baseline to follow-up—a finding that limited the examination of whether attachment insecurities predicted changes in NSSI thoughts. Similar to the previous study, the relationship between attachment, entrapment and NSSI thoughts was examined with baseline data, since this increased the sample size. Moreover, to increase the number of events per predictors the study focused on *lifetime* NSSI thoughts rather than on number of NSSI thoughts in the past month.

The main finding of this study was that lifetime NSSI thoughts were associated with feelings of entrapment, but not with attachment insecurities. In relation to this latter finding, the bivariate correlation between attachment anxiety and lifetime NSSI thoughts was in the expected direction, but it did not reach significance after conducting a Bonferroni correction. A lack of significant relationship between attachment insecurities and lifetime NSSI thoughts indicated that one of the main conditions to establish mediation according to Baron and Kenny (1986), that is, that the independent variable is associated with the outcome, was not met and there was no relationship to be mediated by feelings of entrapment.

The study reported in Chapter 3 is the first one to examine the relationship between entrapment and NSSI thoughts, and it seems to provide support for the idea that motivation to escape from internal and external circumstances underlie not only suicide ideation but also thoughts about engaging in NSSI. The bivariate relationship between entrapment and NSSI thoughts is consistent with Hoff and Muehlenkamp (2009) suggestion that motivation to escape plays an important role in NSSI. Although these researchers proposed this idea based on Baumeister's (1990) escape theory, the study reported in Chapter 3 framed the relationship between entrapment and NSSI thoughts in the context of Williams (2001) cry of pain model; which adopts an evolutionary approach in the understanding of self-harm. Future research could explore whether individuals with NSSI thoughts report lower levels of entrapment as compared with individuals with suicidal thoughts. If so, one could argue that as the level of entrapment increases the wish to die increases as well.

The lack of a significant relationship between attachment insecurities and NSSI thoughts contrasts with previous research. In a study conducted among university students, Levesque et al. (2010) found that as the level of attachment anxiety increased the likelihood of having NSSI thoughts in the past six months increased as well. This contrasting finding may relate to limitations of the 12-item scale used to assess attachment styles, in comparison to the more comprehensive 36-item scale from which the short version was derived. A short measure of attachment was used to reduce the

length of the Web-based survey in an effort to increase response rates at follow-up (Fan & Yan, 2010). But this short measure could have failed to comprehensively measure the attachment style construct.

Taken together, the findings from Chapter 2 and Chapter 3 suggest that insecurely attached individuals are prone to feel defeated, trapped and to think about engaging in self-harm. Attachment anxiety and attachment avoidance seemed to increase the risk of experiencing suicide ideation, but only attachment anxiety might be linked with NSSI thoughts. Future research using comprehensive measures of attachment styles are needed to support the relationship between attachment insecurities and NSSI thoughts. Furthermore, self-harm thoughts with and without the intention to die were associated with the sense of being trapped, suggesting that these thoughts might have similar motivations.

If insecurely attached individuals are prone to feel trapped then it seemed important to investigate what psychological factor could protect them from feeling this way. The psychological factor that was investigated in Chapter 4 and Chapter 5 was social problem-solving skills, since these skills are believed to contribute to the sense of entrapment (Williams, 2001; Williams & Pollock 2001) and a recent study provided preliminary evidence to support this belief (Taylor et al., 2010). Moreover, problem-solving has been found to moderate the relationship between individual difference variables and suicide ideation (Chang, 2002) and to play a major role in suicidality (Clum & Febraro, 2004). Whereas Chapter 4



assessed problem-solving with the MEPS, a well-established measure of this construct, Chapter 5 attempted to shed light on problem-solving as it occurs in real life by adopting a diary method. In addition, Chapter 4 and Chapter 5 focused on self-harm behaviour to examine how it related to attachment insecurities, entrapment and problem-solving.

### **7.1.2 Attachment Insecurities, Problem-Solving and Feelings of Entrapment**

The second broad result of this research, as suggested mainly by the study reported in Chapter 4, was that problem-solving skills as measured with the MEPS were negatively related to feelings of entrapment; as the level of problem-solving skills increased the level of feelings of entrapment decreased. In addition, there was a significant relationship between attachment insecurities and feelings of entrapment. However, problem-solving skills did not moderate the relationship between attachment insecurities and feelings of entrapment.

In Chapter 4 university students completed the MEPS and anonymous computer-based questionnaires of attachment, entrapment and self-harm behaviour. Results showed that as the level of attachment insecurities increased (both attachment-anxiety and attachment-avoidance) the level of feelings of entrapment increased, a finding that seems consistent with the results of Chapter 2 and 3 where the bivariate analyses showed a positive relationship between attachment insecurities and feelings of entrapment. Furthermore, as the number of MEPS solutions and

their efficacy increased, the level of entrapment decreased. This seems to be the first study to examine the relationship between problem-solving, as measured with the MEPS, and entrapment. Taylor et al. (2010) found that negative problem-solving appraisals were related to entrapment. The current finding replicates Taylor et al. study, but further suggests that a performance measure of problem-solving such as the MEPS—which seem to be less influenced by other factors such as depression (Speckens & Hawton, 2005)—is associated with entrapment. Williams and Pollock (2001) suggested that problem-solving is implicated in the development of feelings of entrapment, as deficits in problem-solving might limit the person's ability to cope with life challenges leading to a sense that one is unable to find a solution or way out. The current findings seem consistent with this idea in that individuals who generated relevant and effective solutions to problems were less likely to report a sense of being trapped.

However, the study reported in Chapter 4 did not find evidence to support the view that social problem-solving skills moderates the relationship between attachment insecurities and feelings of entrapment. Although no previous study has examined this issue, this latter finding seems inconsistent with past research where effective problem-solving has been found to reduce self-harm thoughts among individuals with high levels of perfectionism (Chang, 2002). One possible explanation for this finding is that the relationship between attachment insecurities and entrapment is moderated by other psychological factors. One such factor could be

rumination, which has been found to be associated with suicidal behaviour (O'Connor, 2011). Fagundes (2012) found that the relationship between attachment anxiety and psychological distress was moderated by the tendency to reflect about a stressful event. This tendency to reflect about a stressful situation could be similar to rumination, and future studies could further examine whether rumination act as a moderator of the relationship between attachment insecurities and feelings of entrapment. Alternatively, it is possible that problem-solving did not moderate the relationship between attachment insecurities and entrapment because most of the participants, drawn from a community sample of university students, were good problem solvers in general.

This latter issue could also explain why the group of participants with self-harm did not differ from participants without self-harm on the MEPS data. Both groups of students could have had relatively high levels of problem-solving skills. The comparison of the groups with self-harm and without self-harm also revealed that the group with self-harm was more likely to report higher levels of attachment anxiety and of total entrapment. Building on the findings reported in Chapter 2 and Chapter 3, where entrapment were associated with suicide ideation and NSSI thoughts, the findings of chapter 4 further suggest that entrapment is not only associated with thoughts about self-harm, but also with self-harm behaviour. Moreover, attachment insecurities—mainly attachment anxiety—appears to be associated with self-harm thoughts and behaviour.

The study reported in Chapter 5 used a diary method to assess problem solving because a number of researchers have questioned the ecological validity of typically used measures of problem-solving (such as the MEPS) and because a diary method appears to reflect more closely problem-solving as it occurs in real life (Anderson et al., 2009). University students with and without self-harm completed a Web-based diary of their everyday problems and their attempts to solve them. These participants had already completed the MEPS and measures of attachment, entrapment and self-harm. Data derived from the Web-based diary were examined with Pennebaker's computerised text analysis, based on the assumption that the linguistic patterns in the context of writing about everyday difficulties would provide insight into problem-solving. Furthermore, problem-solving data were rated by assessors in terms of efficacy, activity/passivity and problem solving style (i.e., functional, avoidant and impulsive).

The text analysis revealed that linguistic patterns of individuals with and without self-harm were quite similar, specifically, use of words denoting negative emotions and positive emotions was relatively infrequent, whereas use of words denoting cognitive mechanisms was somewhat more common. These linguistic categories, however, were unrelated to self-harm. Moreover, these categories were also unrelated to attachment insecurities, feelings of entrapment and the MEPS data.

No previous study has examined whether a text analysis of written solutions to everyday problems provides insight into

problem-solving processes. However, Lee and Cohn (2010) suggested that a text analysis of written samples of how university students deal with stressful situations could reveal participants' coping strategies. Lee and Cohn showed that use of insight-related words (e.g., "realize") in the writing samples were negatively related to emotion-focused coping, whereas use of words denoting negative emotions (e.g., "angry") were negatively related to problem-focused coping. Additional research suggests that participants who use more words reflecting cognitive mechanisms (e.g., "because") in their writing samples display better outcomes than participants who use less words denoting cognitive mechanisms (Ullrich & Lutgendorf, 2002). Based on these studies, use of words denoting positive emotions and cognitive mechanisms was expected to reflect effective problem-solving. In contrast, use of words denoting negative emotions was expected to reflect less effective problem-solving.

Although a text analysis to assess problem-solving has not yet provided evidence in support of its usefulness, this research suggests that individuals with and without self-harm might be willing to write about their everyday difficulties and to be compliant with instructions. Furthermore, individuals with a history of self-harm could be particularly willing to write about their daily experiences since they tended to write slightly more words than individuals without self-harm.

Regarding the findings of the inter-rater reliability analysis, these findings contrast with the diary study conducted by Anderson

et al. (2009), who found that markers of effectiveness and problem-solving style were related to depression. Differences in the design of the Anderson et al. study and the study reported in Chapter 5 may account for these contrasting findings. Whereas in Anderson et al. study participants reported solutions to problems that occurred in a period between two to four weeks, in the study reported in Chapter 5 participants reported solutions to everyday difficulties, and for a period of seven days. It is possible that participants in the present research were reporting routine hassles that could not have demanded problem-solving efforts. Furthermore, in Anderson et al. study participants, if in doubt of what problems to report, were asked to remember the problems of the MEPS; which they answered prior to taking part in the diary study. In Chapter 5, although participants also completed the MEPS prior to taking part in the diary study, they were not asked to think about similar problems as the MEPS if they had doubt about what to report.

It is possible that participants were reporting solutions to routine difficulties that did not demand problem-solving. This could have limited the use of words that could reflect problem solving and could have introduced difficulties when marking the solutions. This possibility of participants reporting routine hassles seems to be supported by the finding that the solutions were generally short; whereas one could expect longer solutions to genuinely problematic situations. A diary approach to measure problem-solving skills among participants with a history of self-harm could be investigated in future research, but future studies might wish to clearly specify

what is meant by a problem and to provide intense training for marking solutions to everyday problems.

So far, the results described above suggest that insecurely attached individuals tend to feel defeated (Chapter 2) and trapped (Chapter 2, Chapter 3 and Chapter 4). Another possibility is that insecurely attached people are not feeling defeated and trapped in general; rather, they experience these feelings only when they face stressful situations.

### **7.1.3 Stressful Situations, Attachment Insecurities and Feelings of Defeat and Entrapment**

The third broad result of this research, suggested in Chapter 6, was that after a defeat-inducing event insecurely attached people felt significantly less calm than securely attached individuals. Chapter 6 examined a mechanism through which attachment insecurities may be related to defeat and entrapment; specifically, it examined whether attachment insecurities exacerbated feelings of defeat and entrapment in response to stressful situations. Building on a study conducted by Johnson et al. (2011), participants rated their current feelings of defeat and entrapment using visual analogue scales and they also completed attachment styles measures. Next, they were presented with laboratory-based stressors to induce feelings of defeat and entrapment. To manipulate feelings of defeat participants completed a computer-based anagram task (Johnson et al., 2008) that had a fixed success (low defeat) or a fixed failure (high defeat) outcome; whereas to manipulate feelings of entrapment participants viewed a computer

animation of a journey inside a maze that had an exit (low entrapment) or no exit (high entrapment). After taking part in these tasks, participants completed visual analogue scales a second time.

As expected, participants who completed the anagram task but had a fixed failure outcome (high defeat) reported higher levels of defeat than participants who completed the same task but with a fixed success outcome (low defeat). Attachment insecurities, however, did not moderate the effect of the defeat condition on subsequent feelings of defeat. Yet, when other moods were examined, attachment avoidance was found to be a significant moderator. Specifically, in response to the defeat-inducing stressor participants with high levels of attachment avoidance felt significantly less calm, and tended to feel sadder, than participants with low levels of attachment avoidance. This latter finding was unexpected since past research suggests that avoidant individuals tend to minimise or suppress distress in response to stressful situations, presumably as a way of preventing the experience of more painful feelings associated with early experiences of rejection from caregivers (Mikulincer & Shaver, 2008; Mikulincer et al., 2003). Regarding feelings of entrapment, the computer animation of a journey inside a maze has not yet provided evidence of inducing these feelings, and as a consequence this limited examining whether attachment insecurities exacerbated entrapment.

It is unclear why anxiously attached individuals did not tend to feel defeated, and to exacerbate negative feelings (e.g., sadness), in response to the defeat-inducing stressor. Past research



suggests that anxiously attached individuals tend to exacerbate distress when confronted with stressful situations. One possible explanation for this finding is that the defeat-inducing stressor used in the study lacked an interpersonal component, a component that might be particularly relevant for anxiously attached individuals. Simpson, Rholes and their colleagues have investigated the different sources of stress that can activate the features of attachment insecurities (Simpson & Winterheld, 2012). Based on attachment theory, Simpson and Winterheld suggest that stressful situations that centre on relationship issues, such as the loss of a romantic partner, elicit the most typical features of attachment anxiety including intense worry, exacerbation of distress or rumination about worst-case scenarios. A study conducted by Besser and Priel (2009) seems to support this view, in that anxiously attached participants, but not avoidant, tended to feel tense, hostile and depressed after being asked to imagine a scenario in which their romantic partner rejected them. An alternative explanation is that attachment anxiety did not exacerbate feelings of defeat in response to the laboratory stressor because the study used a short measure of attachment. This could have reduced the internal consistency of the measure and the statistical power of the interaction term (Frazier et al., 2004) between attachment anxiety and the defeat condition.

The finding that attachment avoidant individuals felt less calm and tended to feel sadder in response to the defeat-inducing event was somewhat surprising, since past research suggest that these

individuals tend to minimise distress. It is possible that attachment avoidant individuals are prone to experience less calmness and more sadness in response to situations that conflict with their overly positive self-views. Bartholomew (1990) suggested that attachment avoidant individuals tend to hold overly self-conceptions in an attempt to protect themselves from memories of rejection from caregivers that could have resulted in a sense of being unworthy of affection. It is possible that this overly positive self-view is fragile and capable of being challenged when confronted with situations of failure. Although attachment avoidance did not exacerbate feelings of defeat, the finding represents a starting point for examining whether attachment avoidance act as a diathesis.

Future research examining whether attachment insecurities exacerbate feelings of defeat and entrapment could investigate whether specific types of stressors are more relevant for anxiously attached and attachment avoidant individuals. As mentioned above, it is possible that anxiously attached individuals are more sensitive to interpersonal stressors, whereas avoidant individuals are sensitive to stressors that conflict with their positive views.

Taken together, the pattern of results emerging from this research suggests that people with a history of self-harm thoughts and behaviour tend to report attachment insecurities and feelings of entrapment. Moreover, being insecurely attached might indicate that one is prone to feel trapped, irrespective of one's problem-solving skills. Yet entrapment, as suggested by this research, might not yet

be able to explain why insecurely attached people are likely to report self-harm thoughts.

## **7.2 General Implications**

The main theoretical implication of this research is that vulnerability to feelings of defeat and entrapment, as well as vulnerability to self-harm, might be linked with inadequate attachment experiences. This view seems consistent with Adam's (1994) developmental model of suicidal behaviour, where adverse early attachment experiences and resulting attachment insecurities act as distal risk factors for later self-harm. Moreover, this view is compatible with a recent model of suicidal behaviour, the integrated motivational-volitional (IMV) model (O'Connor, 2011), in which vulnerability to suicidal behaviour is believed to be influenced by personality and individual differences variables (e.g., perfectionism) that could have developed in the context of inadequate parenting.

Child and family adversity has been found to be associated with self-harm and researchers believe that psychological mechanisms underlie this association (Bruffaerts et al., 2010). The findings of this study suggest that one way to investigate these psychological mechanisms is through attachment theory. Attachment theory posits that early interactions with caregivers are internalised into mental representations (working models) that lead to the formation of relatively stable attachment styles, which shape how people relate to others and how they cope with stress later in life (Shaver & Mikulincer, 2009). Building on attachment theory, Adam (1994) suggested that adverse early attachment experiences

and resulting attachment insecurities hinder a person's ability to form fulfilling interpersonal relationships and to effectively manage distress. When insecurely attached individuals experience current loss, rejection or disappointment they could be prone to experience intense psychological distress and to react negatively to it by engaging in self-harm.

The findings of this study suggest that sensitivity to defeat and entrapment could be rooted in early attachment experiences. Feelings of defeat and entrapment, according to evolutionary perspectives of psychological difficulties, are believed to be universal reactions to stressful situations. Yet, researchers believe that individuals might differ from each other in their sensitivity to react with these feelings. Williams, Crane, et al. (2005) highlighted this possibility in the cry of pain model of self-harm by positing that some individuals might be more sensitive to react to stressful events with feelings of defeat and entrapment, but there seems to be no indication about the origins of this sensitivity. Influenced by the cry of pain model, the recently proposed IMV model of suicidal behaviour (O'Connor, 2011) suggests that sensitivity to signals of defeat and humiliation are determined by background factors—such as personality and individual differences variables—that could have developed in the context of adverse environmental circumstances. Background factors, according to the IMV, correspond to the first of three phases of suicidal behaviour that reflect the biosocial context (pre-motivational phase), the next phase reflecting the development of suicidal ideation (motivational phase) and the last phase

corresponding to the translation of thoughts to actual behaviour (volitional phase). Based on the IMV model, the findings of the present research suggest that attachment insecurities might be one such background factor that fosters sensitivity to defeat. Moreover, it is possible that attachment insecurities are implicated in the development of feelings of entrapment.

The present research is the first one to show a relationship between attachment insecurities (attachment anxiety and attachment avoidance) and feelings of defeat and entrapment. Sloman et al. (2003) suggested that the capacity to cope with setbacks and defeats in life is closely related to early attachment relationships. These researchers suggested that attachment relationships are the first place where a person develops the ability to elicit support and reassurance from others and to regulate emotions, an ability that they identified as critical in dealing with setbacks or defeats in later life. These researchers suggested that if a child, when confronted with stressful experiences, receives reassurance and support from their caregivers he or she will develop a sense of self-confidence to elicit support from others and to reduce anxiety. Later in life, this individual is believed to be well equipped not only seek support to reduce distress, but also to accept setbacks in life rather than remaining entangle in a conflict where there is little opportunity of succeeding. In contrast, a child who did not receive support and reassurance from his or her care givers when confronted with distress might lack the ability to regulate negative emotions later in life and to move on when

confronted with life challenges—which may contribute to a sense of being defeated.

The findings of the present research seem consistent with the view of Sloman et al. (2003). Anxiously attached individuals are worried about losing close relationships, desire closeness and protection from others and crave for felt security (Shaver & Mikulincer, 2009). One possible reason why these individuals tended to feel defeated is that their demands for closeness and protection, which are often excessive, are generally unmet and this leads to a sense of failure. In the case of attachment avoidant individuals, attachment theory and research suggest that these individuals are overly self-reliant and that they hold excessively positive self-views. Although past research suggests that these individuals are less likely to report psychological distress, other studies have found that attachment avoidance is related to symptoms of depression characterised by self-criticism, perfectionism and self-punishment (Zuroff & Fitzpatrick, 1995). Thus, one possible reason of why these individuals were likely to report feelings of defeat is that excessive self-reliance and perfectionist tendencies lead them to have a sense that they have not made it in life, which could reflect a sense of failure.

Fischer-Mamblona (2000) suggested that the lack of a secure attachment might be linked with a strong motivation to escape that will be present throughout life. It is unclear what mechanisms explain why insecurely attached individuals were prone to feel trapped. It is possible that anxiously attached individuals and

avoidant attachment people feel trapped through different paths. As mentioned earlier, attachment theory and research suggest that anxiously attached individuals tend to intensify negative emotional responses to stressful situations and to ruminate on threat-related worries. The constant experience of distress and the tendency to ruminate on threats, particularly those related to interpersonal conflict, might contribute to a sense of being trapped by their own feelings and thoughts or by external circumstances that are perceived as threatening. For attachment avoidant individuals the path might be different, since these individuals are believed to suppress negative emotional reactions, as these reactions could be viewed as a sign of weakness. Yet, when the stressors are severe and chronic, attachment avoidant individuals have been found to experience psychological distress (Mikulincer & Shaver, 2008). Coupled with these individuals' tendency to be reluctant to seek help when distressed (Shaffer, Vogel & Wei, 2006), they might be prone to experience a sense of being isolated from others. In such circumstances and without the support from others, attachment avoidant individuals might be prone to experience a sense that there is no way out.

The relationship between attachment insecurities, particularly attachment anxiety, and self-harm thoughts and behaviour strongly suggest that assessment of attachment can help identify individuals at risk of engaging in self-harm. Moreover, knowledge of the individual's attachment style can help the therapist anticipate how the patient might respond to therapeutic interventions. If the

individual is anxiously attached the therapist might need to adopt a stance that allows coping with emotions, such as clarifying the treatment frame; if the individual shows an avoidant attachment style the therapist might need to be more engaged (Levy, Ellison, Scott & Bernecker, 2011). In the context of a suicide crisis, Gormley (2004) suggested that suicidal patients high in attachment anxiety could be expected to be more dependent, whereas patients high in attachment avoidance could be expected to be more self-reliant. In both cases, however, Gormley suggests that the therapist, while being mindful of dependent or independent needs, should aim to promote a deep sense of being cared about among these individuals. Gormley's suggestions need to be tested empirically, since they are based on her clinical experience with suicidal women. At a broader level, the relationship between attachment insecurities and self-harm thoughts and behaviour suggest that prevention of self-harm could focus on the infant-caregiver relationship. Promoting secure attachments between parents and their young children could potentially reduce self-harm in adulthood.

The results of the present research also suggest that there is a need to further investigate the conceptualisation and operationalisation of defeat and entrapment. Defeat and entrapment as measured with Gilbert and Allan (1998) scales were highly correlated, suggesting that they could be part of the same psychological construct. The factor analysis conducted by Taylor et al. (2009) suggested that a single factor underlie the scales of defeat and entrapment, a factor that these researchers describe as



a sense of failure without a solution or way forward. An alternative view is that defeat and entrapment are distinct yet overlapping constructs (O'Connor, 2011).

Finally, this research suggests that developing laboratory stressors that can induce ethically levels of defeat could help us better understand how attachment insecurities or other individual difference variables exacerbate these feelings. To investigate in detail whether attachment insecurities exacerbate feelings of entrapment in response to stressful situations, the study reported in Chapter 6 developed a laboratory stressor to induce moderate levels of entrapment. Although the results of the study suggest that this laboratory stressor has not yet provided evidence of manipulating feelings of entrapment, it represents a starting point for the investigation of whether experiences of defeat and entrapment in response to stressful events vary as a function of attachment insecurities.

### **7.3 General Limitations**

One limitation of the present research is that the studies reported in the previous chapters might have lacked an adequate sample size, which could have reduced their statistical power or generated relationships between predictor and outcomes that need to be replicated with larger samples. The replication of findings might be more relevant for the studies where logistic regression models were used (Chapter 2, 3 and 4), since the number of events-per-predictors in these studies (e.g., number of cases with suicide ideation per number of variables in the model) was smaller

than 10, which could have introduced bias in the estimation of the logistic regression coefficients (Babyak, 2004). Logistic regression models were used in these studies because the outcomes, specifically, suicide ideation (Chapter 2), number of NSSI thoughts in the past month (Chapter 3) and feelings of entrapment (Chapter 4), showed severe positive skewed distributions that did not improve with transformations. Severe positive skewed distributions on these outcomes are expected among a student population, since most of them might experience low or none psychological problems and just a few would experience serious difficulties.

Investigating the relationship between attachment styles and components of the cry of pain model among a student sample suggests that the findings might not generalise to clinical samples. Related to this, compared with a clinical sample students might have more effective problem-solving skills independently of a previous history of self-harm. This could be related to the lack of a significant difference on the MEPS data between students with self-harm and students without self-harm. Related to the composition of the sample, it comprised mostly female participants and as a consequence results may not generalise to male participants.

The findings of this research are unable to clarify the direction of the relationship between attachment insecurities, feelings of defeat and entrapment and self-harm. As a consequence, participants' reports of attachment may have been affected by their current feelings of defeat and entrapment, or by their self-harm thoughts and behaviour. Similarly, the relationship between

problem-solving and entrapment reported in Chapter 4 raises doubts about the direction of causality, and therefore it is possible that current feelings of being trapped impact a person's capacity to deal with problems in life. Attachment styles, however, seem to be remarkably stable throughout life (Levy et al., 2006) and this provides support for the idea that attachment insecurities act as distal risk factors for defeat, entrapment and self-harm. Longitudinal studies could examine whether attachment insecurities lead to defeat, entrapment and self-harm or whether these factors distort self-reported attachment ratings.

Although this research attempted to account for important psychological difficulties associated with self-harm, such as depression and anxiety, it did not adjust for a number of other variables that might help to better explain not only these thoughts but also feelings of entrapment. Indeed, the present research accounted for current depression and anxiety when examining the relationship between attachment and self-harm thoughts (Chapter 2 and Chapter 3), but it did not adjust for these psychological difficulties when examining the relationship between attachment insecurities, problem-solving and feelings of entrapment (Chapter 4). Among young people, depression seems to have a major effect on problem-solving skills (Kingsbury et al., 1999; Speckens & Hawton, 2005), highlighting the need to examine in future research how these skills relate to entrapment in the context of depression.

A related issue was that depression and anxiety were measured in the context of current symptoms, but not in the

context of lifetime presence of these psychological problems which could have underestimated the full extent of depression and anxiety. Variables that might be included in future research to better understand the relationship between attachment, defeat, entrapment problem-solving and self-harm include stressful life events (e.g., trouble relationships, family conflicts, professional and academic difficulties), as well as other cognitive and individual difference variables. The role of hopelessness might be important to examine since it has been related to suicidal behaviour (McMillan, Gilbody, Beresford & Neilly, 2007). It is possible that the relationship between suicide ideation and attachment insecurities on the one hand, and defeat and entrapment on the other, is no longer significant when accounting for hopelessness since it has been found to be a strong predictor of suicidality. However, defeat and entrapment have been found to be associated with suicide ideation while accounting for hopelessness (Taylor et al., 2010) and attachment avoidance and attachment anxiety have been found to be associated with suicide ideation while adjusting for hopelessness among Turkish women (Zeyrek, Gençöz, Bergman & Lester, 2009).

Another individual difference variable to examine in future research could be perfectionism, which seems to play an important role in suicidality (O'Connor, 2007). It would be useful to determine how attachment insecurities and perfectionism relate to self-harm, and whether these individual difference variables interact in increasing the risk of engaging in this behaviour. There is some preliminary evidence to support the view that attachment

insecurities and maladaptive perfectionism (concern over mistakes, failure to meet high standards) work together to increase the risk of depressive mood, including hopelessness. Using structural equation modelling, Wei, Mallinckrodt, Russell and Abraham (2004) found that attachment insecurities (both attachment anxiety and attachment avoidance) lead to maladaptive perfectionism and this, in turn, to depressive mood among university students. Future research could examine if the same pattern of results emerge when examining self-harm thoughts and behaviour as outcomes.

#### **7.4 Conclusions**

The complexity of self-harm might require a thorough analysis of how and why distal and proximal correlates work together to increase the risk of this behaviour; a behaviour that causes significant psychological and physical harm to those who engage in it and significant distress to their family and friends. The results of the current research indicate that a history of self-harm thoughts and behaviour was associated with attachment insecurities and feelings of entrapment. Moreover, feelings of entrapment were related to attachment insecurities. The findings suggests that inadequate parenting behaviour and resulting attachment insecurities serve as distal risk factors for later feelings of entrapment and self-harm. Furthermore, it is possible that the desire to escape from unbearable suffering serve as a proximal factor that motivates self-harm. Since entrapment was correlated not only to suicide ideation but also to NSSI thoughts, this correlation seems to provide support for the idea that self-harm is

not a manipulative act but possibly a reaction to an otherwise unbearable situation. The results imply that attachment insecurities and feelings of entrapment deserve further exploration as an intervention target. Moreover, since attachment insecurities are believed to develop in adverse familial conditions, gradually more attention may be given to the prevention of these conditions by identifying families at risk.

While this research indicates that attachment insecurities, feelings of entrapment and self-harm thoughts and behaviour are related, it is unclear what the direction of these relationships is and what psychological mechanisms might underlie them. Regarding the direction of these relationships, there is a need for longitudinal studies on how attachment insecurities might predict feelings of entrapment and self-harm, and what mediators could account for these changes. It is possible that complicated mediation models account for these changes, including stressful life events, hopelessness and positive future thinking. Furthermore, the path from attachment insecurities to feelings of entrapment, to self-harm thoughts and behaviour should be further investigated with larger samples and comprehensive measures of attachment. Regarding the psychological mechanisms, experimental studies might shed light into the role of attachment insecurities on entrapment possibly by investigating if these insecurities act as a diathesis in response to specific events. Whereas anxiously attached individuals might react negatively to interpersonal difficulties, attachment avoidant

individuals might experience negative emotions in response to events that conflict with their overly positive self-views.

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